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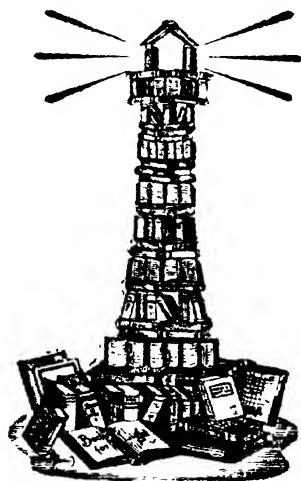




# REBUILDING LIBERATED RUSSIA

BY

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KITAB MAHAL  
ALLAHABAD

**FIRST PUBLISHED IN INDIA, 1945**

**PRINTED BY M. MANZUR AHMAD, AT THE  
MODERN PRINTING WORKS, ALLAHABAD  
AND PUBLISHED BY KITAB MAHAL,  
56-A, ZERO ROAD, ALLAHABAD.**

## PREFACE TO THE INDIAN EDITION

One of the biggest problems that Russia has to face now is the reconstruction and rebuilding of the ruined, destroyed and devastated cities and villages. Nazi attack and scorched earth policy ruined many of the best Russian pieces of art and architect, industry and agriculture. But the Soviet people and their technical, economic and political leaders are bent upon the rebuilding a new and better Soviet life on the ashes of the old.

Much energy, acumen, intelligence and foresight are required to make and execute successfully the future industrial, agricultural and other plans in the post-war period in India. Our technical leaders and industrial magnets can learn a lot from the experience and knowledge of the Soviet people.

Be it Gandhiji's fourteen points or Tata Birla plan of Bombay, only that scheme or plan can be successful which like Soviet Union takes into consideration only material and moral welfare of the peoples of the land.

This small booklet is strongly recommended to those who are really interested in the economic, social and political welfare of the India's teeming millions.

Publishers.

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## CHAPTER I

# THE COUNTRY AND THE INVADERS

As an historian and a specialist in ancient Russian architecture I should like to preface what is for me an unusual little booklet with a few remarks on the history of Russia for this is not the first time that our country has been the scene of gigantic battles of world importance fought against foreign invaders who sought to rob the people of their liberty and independence. The first centuries of the history of the young Russian State were filled with the raids of the Polovtsi and the Pechenegs, the vultures of the steppes ; Hungarians and Poles made efforts to obtain the rich lands of Galicia-Wolhynia in the 12th and 13th centuries ; the terrific onslaught of the Mongols in the 13th century was the cause of tremendous loss, it checked the development of the Great Russian centre and led Russia's western neighbours to believe that it would be an easy matter to seize the lands of the free towns of Novgorod and Pskov. Towns and villages were laid waste by invaders who strove to turn the rich country into a desert and its people into their slaves. The Germans and Swedes were checked in the 13th century by the people's armies led by the great captain, Alexander Nevsky, while the 150 years' oppression of the Mongols was expiated in the 14th century blood-bath at Kulikova when Dmitry Donskoy's Russian army routed Mamai's hordes. At the beginning of the 17th century Poles and Swedes took advantage of the internal situation to invade Russia ; the Poles even occupied the Moscow Kremlin and foreign observers considered that the end of the State of Muscovy had come. The Russian people, however, proved themselves capable of withstanding this new trial and under the banner raised by Minin and

Pozharsky they sallied forth and drove the hated invaders out of Russia.

Two centuries later Napoleon sat in a room in that same Moscow Kremlin and watched the great conflagration that preceded the rout of his seemingly invincible "grande armee" and marked the beginning of his end as a soldier. In our own time the peoples of the young Soviet Republic withstood the terrible trial of the Civil War and during the two decades that followed, built up a new way of life and a new country which took its place amongst the foremost powers of the world. This last fact has been proved true by the events of the present war, the Great Patriotic War, as we call it in Russia, with its battles on a scale never before known in history, battles like Stalingrad, Orel, Kursk, the Crimea, the North Caucasus, Leningrad and the Dnieper.

I am not reminding the reader of these already well-known events in the history of my country in order to confirm that which requires no further proof after the great battles that were fought on the Eastern Front during 1943 and 1944. I want to talk about something else. All these wars with their terrible destruction, fought on Russian soil, left her devastated and ruined, defenceless villages were razed to the ground, forests overgrew the farmlands, artisans fled to the interior of the country; it seemed that life had ceased to exist in the devastated regions where the enemy had done his evil work.

When we ponder over these facts we involuntarily compare the 13th century Mongol hordes with those of the modern barbarians, the fascists. They are naturally not to be compared as regards the level of their technique of war—Hitler has been very aptly termed the mechanised Tamerlane; their barbaric methods of enslaving the conquered peoples, however, bear a very close resemblance. They consisted of laying waste the country and turning it into either

an expanse of open land for the Mongol nomads, or landed estates for the German masters, of wrecking towns and villages, of lowering the national dignity of the people, destroying their monuments of art and antiquity, of killing the most progressive people and leaving the remainder of the population, badly shaken by bloody terror, as working cattle or slaves for the higher race. In all this the principle is the same although the scale on which it was carried out was vastly different. The Germans have advanced far beyond all the barbarians in world history for they have raised barbarity to a political dogma and armed it with all the monstrous destructive power of modern engines of war. The destruction wrought by the Mongols in the 13th century seems like native playfulness when compared with what Hitler's unsuccessful "new order" left behind on the lands of the Soviet peoples. The Mongols destroyed the very much simpler culture of the 12th and 13th centuries with its buildings of a more elementary nature and an economy based on exchange between feudal town and village. Hitler's soldiery set themselves the task of destroying the high material culture of the socialist state, its flourishing towns, its state and collective farms, its mighty power stations, its whole world of buildings and those monuments of art and national culture that were protected as the most treasured heritage of our ancestors.

As they retreated under the blows of the Red Army the Germans wiped out towns and villages that were of no military significance and were not the scene of operations. This was the fulfilment of their devilish idea of completely destroying life on the territory they abandoned and of leaving behind them nothing but the ashes of huge conflagrations. Special detachments of incendiaries set fire to wooden buildings, sappers mined the bigger brick edifices, public and administrative buildings, monuments of art and of the past. The gendarmes and guards

shot down people who tried to extinguish the fires. The consistent planned methods which were employed to carry out this hellish work of destruction were so complete that a large number of towns and numerous villages were completely wiped out. There is no doubt that this deliberate "policy" of looting and arson brought the country greater losses than the work of the German Luftwaffe and artillery.

Here are a few figures which will give the reader an idea of the tremendous losses that the Germans wrought in Soviet towns and villages in the sphere of architecture alone.

In the Russian Soviet Federative Republic the Germans destroyed about 500 towns and factory settlements and over 14,000 villages.

In the occupied districts of Moscow Region the Germans destroyed 2,280 villages, burnt down 47,246 collective farmers' homes and 12,000 urban dwellings; they destroyed 46,000 farm buildings, 1,000 schools, 700 village reading rooms, clubs, etc. A special commission has established the amount of destruction done in Moscow Region alone at 7,125,358,000 and the total damage done in the Russian Soviet Republic at 25,000 million rubles.

In Smolensk Region the Germans completely destroyed or burnt to the ground 12 towns, 8 factory settlements, 10 district centres and 2,000 villages. The buildings destroyed were 100,000 urban apartments, 220,000 collective farmers houses, 28,500 farm buildings, 870 industrial buildings (out of the 900 that existed before the war), all the 236 power stations and countless other buildings. Out of Smolensk City's 8,000 houses with their total floorspace of 650,000 square metres, the Germans destroyed or burnt down 7,200; they wrecked the tramway system, the water mains, the power station, 27 hospitals and other medical institutions, 25 nurseries, all the schools and numerous other buildings. The total damage done to



municipal enterprises, communications and trading organisations in Smolensk amounts to over 700,000,000 rubles, damage to industry amounts to a further 300,000,000 rubles, to railways, 60,500,000 rubles and damage to medical institutions is estimated at 70,000,000 rubles.

In Novgorod 40 buildings survived out of 2,346; the Germans destroyed 12 industrial enterprises, wrecked the town water supply system and the town power station and transmission lines; they burnt down the museum building, 4 colleges and a technical institute, 5 workers' clubs, 2 cinemas, the town theatre, the Red Army club and 11 medical institutions. In the Novgorod district 7,335 buildings out of 8,849 were destroyed or badly damaged and 75 out of the 76 schools were burnt down.

Now that the Ukraine has been completely liberated from the enemy, a full account of the damage done will be drawn up. In the meantime, we will quote a few figures that have been established by the Extraordinary State Commission and local authorities. By fire and explosives the Germans destroyed the main street of Kiev, Kreschatik, and the finest buildings in the adjoining streets. They destroyed 940 buildings belonging to municipal and state institutions with a total floor space of over a million square meters, 2,600 dwelling houses belonging to private persons with a total floor space of about 500,000 square metres. The fascists blew up, burnt or destroyed all Kiev's public utilities leaving the city without water, light or transport. An area of 125 acres containing from 5 to 7 kilometres of streets was completely destroyed in Kiev.

According to the incomplete data available the ruined buildings in 19 districts of Orel region are: 583 buildings belonging to state institutions, 317 industrial buildings, 316 railway buildings, 881 schools and other cultural institutions, 181 medical institutions,

284 municipal buildings, 493 trading establishments and 58,866 farm buildings.

In the towns of Stalino Region, Donetz Basin, 8,412 dwelling houses, 302 schools, 143 kindergartens and nurseries were destroyed. In Sumi Region, 9,000 collective farm buildings and 35,460 farmers houses were destroyed and 96 villages were burnt to the ground.

As far as has been established the Germans destroyed buildings in the Ukraine with a total floor space of four million square metres.

These figures, taken only as an example, give an impressive picture of devastation in the regions from which the enemy has been expelled and at the same time show the difficulty and the tremendous scale of the work of rehabilitation.

The work of reconstruction is already so well under way and is going forward at a speed and with such intensity that it astounds those who are participating as well as those who are merely witnesses to the work. Here again I would like for a brief moment to glance back at the history of our people in order to explain much that is at first glance incomprehensible in this tremendous outburst of creative labour. I would like to remind my readers that throughout the many centuries of Russian history and always in times of great trouble the people have mustered strength enough to contain the enemy and make his victories the prelude to his defeat; the people have, furthermore, always been able to muster sufficient creative energy to bring their devastated lands back to life, to raise the walls and the temples of the towns, rebuild the villages of log cabins that formed their world and raise new harvests from fields that had run wild. Foreigners have always been astonished at this tremendous reconstructive strength displayed by our people, a strength which they could not understand. Towns of

## THE COUNTRY AND THE INVADERS

wooden houses, burnt down time after time, reappeared again at fabulous speed, new and more beautiful dwellings and churches arose in place of the old. The motive force behind this continual building was the love which the Russian bears for his native land his hearth and home and that of his fathers. This "reconstruction" of what had been destroyed was something in which the whole people took part for every adult was skilled in the art of carpentry and the century-old artistic and technical traditions that went with it.

It was this widespread skill in building and the almost continuous building activities in town and village that long ago led to the adoption of important new technical methods, methods which we have, as it were, discovered anew in our own day. Adam Oleary, a traveller who visited Moscow in 1634, writes an astonishing account of pre-fabricated houses for sale on the Moscow market; the timber had been cut and fitted in the thickly-wooded districts and floated down the rivers to Moscow. A century earlier than this, in 1551, Ivan the Terrible's military engineers built a whole fortress of logs, dismantled it and floated it down the rivers to within the precincts of the Khanate of Kazan and then re-erected it with astonishing rapidity on the banks of the River Sviyaga. The two instances that have by chance been handed down in history remind us very strongly of the factory-made pre-fabricated houses greatly in favour today.

When you recall these and many other similar facts from the history of Russia, you begin to see that there is a kind of historical law governing the magnificent building work in which the whole people are taking part and which has developed under our very eyes in the regions of the Soviet Union that have been liberated from fascist occupation.

This potential "reconstructive strength" which history has inculcated in the Russian people and which seems to have become a national trait, has been greatly increased by conditions of life in the Soviet period. In the great work of reconstruction all the brother peoples of the Union stand shoulder to shoulder with the Russians. The will of the people to victory and to bring about the rebirth of their towns and factories, villages and fields in the shortest possible time has been given greater strength and has been organised by the people's government of the country; the leading people of the country are enrolled in the party of Lenin and Stalin, the party which the people love and which is not only leading the people on the field of battle and on the field of labour but also learns from the people, has a fine feeling for the ideas and emotions of the people and their experience of life and in conquering all difficulties. Only when we remember all this can we understand and give a just assessment of the great deeds of labour heroism of which the rebuilding of Stalingrad is an example, where the struggle begun on the field of battle is being continued on the field of labour. "The Patriotic War has proved that the Soviet people are capable of performing miracles and emerging victorious from the most difficult trial", said Marshal Stalin.

## CHAPTER II

### THE TASK OF RECONSTRUCTION

The needs of wartime and of the war itself provided Soviet architects with a number of new problems directly connected with war, such as the building of defensive works, the camouflage of towns and isolated industrial enterprises, etc. During the first two years of the war our architects were fully employed in helping strengthen the military might of the country, working in the army engineering units and at the headquarters of Civil Defence in the cities. When the liberation of the German-occupied regions began, the country and its builders were confronted with a new task, a task no less honourable but a thousand times bigger and more difficult—that of organising and accomplishing and in the shortest possible time the building of towns and villages that the German barbarians had destroyed and of making possible a return to normal economic and industrial life. This task was formulated briefly and with great clarity by Marshall Stalin in a speech delivered on 6th November, 1943, on the occasion of the 26th anniversary of the October Revolution. "In the areas where the fascist cut-throats have for a time been masters, we shall have to restore the demolished towns and villages, industry, transport, agriculture and cultural institutions; we shall have to create normal living conditions for the people delivered from fascist slavery... We must completely eliminate the consequences of the Germans' domination in the districts liberated from German occupation. This is a great national task. We can and must cope with this difficult task within a short time."

The fact that the country began reconstruction without waiting for the end of this gigantic war,

made it necessary to plan and carry out the work under very special conditions. After the preliminary work had been done to provide the minimum of food, water and shelter for the people, those factories which either directly or indirectly could help supply the needs of the front had to be rebuilt. As an example of this we may take Rostov on Don ; within one month of liberation the tobacco factory started work and by the first anniversary of the city's liberation, 14th February, 1944, 105 industrial enterprises were working. The Ukrainian sugar refineries rebuilt during 1943-1944 provided 28,000 tons of sugar for the army at the front and for the needs of the country. This does not mean that everything else had to go by the board ; the especial feature of socialist construction is the effort made to surround these factories with dwelling houses and other buildings necessary for the comfort and recreation of the people to the greatest possible extent under the conditions obtaining.

On the 21st August, 1943, a joint instruction was issued by the Council of People's Commissars and the Central Committee of the Communist Party or the Soviet Union on "Some Urgent Measures to be Adopted for the Restoration of the Economy of the Regions Liberated from German Occupation", which was in reality an extensive state plan for the work of restoration. The rebuilding of dwelling houses was dealt with in Article VII of the Instructions "Measures for Assisting the Restoration and Building of Dwelling Houses for Collective Farmers and Factory and Office Workers". In this Article stress is laid on the organisation of the production of building materials from local raw material resources such as terra-cotta blocks, breeze blocks, limestone, tiles, alabaster, gypsum, roofing shale, etc. ; on the construction of 13 factories for the production of pre-fabricated houses, the distribution of timber and

the apportioning of credits for individual builders in the rural areas. In the national budget and in the budgets of the towns for 1943 huge sums were allotted for reconstruction work.

Under these circumstances the planning and organisation of reconstruction work required greater attention than ever before from government bodies.

Shortly after the above instructions had been issued, a "Committee on Architecture" was organised by the Council of People's Commissars (30-9-1943); this is a central architectural body whose duty includes "improving architectural work" and "exercising government control over the architecture and planning necessary to reconstruct the towns and other communities that have been destroyed by the German invaders". The work of all architectural studies and other organisation throughout the country comes under the control of the committee. In the constituent and autonomous republics of the Union and in a number of large towns Architectural Boards have been established; a large network of architects' bodies has been organised under the committee's control up to and including Chief City Architects' Departments. This widespread network of state organisations will undertake the fulfilment of the numerous tasks connected with reconstruction and new construction; they will approve the planning of towns, the designs for the most important buildings, designs for model houses and the rate at which the building of dwelling houses is to be undertaken. Architectural Boards will also approve prefabricated parts for interior and exterior decoration, equipment of buildings, the quality of building work and will organise the training of architects and workers for the building and allied industries. Designs for the most important installations, instructions and other legislative measures for the improvement of building work will be submitted to the

Council of People's Commissars of the U. S. S. R. for approval through the medium of the Committee on Architecture.

Other architectural and designing bureaus belonging to the various People's Commissariats and newly formed local bodies are also being drawn into the work of reconstruction. Special People's Commissariats of the Building Materials Industry have been set up in all the Constituent Republics of the Union. For the gigantic work of rebuilding Stalingrad a special reconstruction Board has been set up which is the local headquarters guiding the work. Building trusts, architects' studios and "architects' brigades" have been organised in all the liberated towns to direct the work of reconstruction.

All these state organisational measures taken together fulfil the purpose of simplifying and rationalising building work and subordinating it to one centre of control; this is particularly necessary in view of the fact that while reconstruction is going on the country is still prosecuting a gigantic war.

Such state guidance in architectural work has no parallel in the history of the world although in the past history of Russia we again find something closely resembling it. After the fierce struggle of the Civil War and intervention at the beginning of the 17th century the Chancellory of Building (Prikaz Kammennykh Del), which included all the country's best building workers from the leading architects down to simple stone-masons and bricklayers, sent out contingents of workers to erect the most important buildings in the country; this Chancellory played an important part in increasing the defence potential of the country and building up her cities. The idea of the exercise of state control over national building schemes is typical of Russian culture. The same idea was applied by Peter the Great when he built St. Petersburg, a city whose later history is an example



of the planned development of a city as a uniform ensemble. All these measures taken in the past, however, dealt only with the building of the biggest cities. Modern planning embraces the whole country, town and village alike.

This fact confronts the architects with a number of entirely new problems. Until recent times architects have not paid much attention to the building of small provincial towns, to say nothing of villages; the small towns and villages were built by the people, by carpenters and bricklayers who built according to tradition, following ways of life and æsthetic requirements which arose long ago. The architect is now called on to play his part in this creative work of the people and he is the important role of organiser and rationaliser.

The villages and provincial towns of Russia were built gradually and did not require large quantities of building material or large numbers of workers; building, for example, did not exhaust the timber resources of the region concerned and the small output of local brickfields and stone quarries was always sufficient. Construction on a huge scale during the period of the Stalin Five-Year Plans, the period of peaceful socialist construction as we call it in our country, provided the necessary technical basis for the work of the architect. Even these tremendous potentialities are insufficient for the task in hand today when we are faced with the problem of simultaneously rebuilding tens of thousands of village houses and subsidiary buildings and dwelling houses with millions of square kilometers of floor space in hundreds of devastated towns.

There are three important problems which arise out of the task of reconstruction :

1. The scientific planning of model buildings of all types from village houses to big public buildings

so that they should be practical, rational and economical to the maximum degree ;

2. The problem of building materials, and

3. The problem of planning the towns and villages that are being reconstructed.

The problem of the provision of building materials may be considered a purely technical problem, but problems concerning the reconstruction of dwelling houses and whole communities are much more complicated. It is not only a matter of rendering "first aid" to people who have suffered from the invasion of the barbarians but is a problem closely connected with the past and future lives of these people ; following directly in the wake of and even simultaneous to the measures adopted for "first aid" fundamental building is being undertaken which will determine the way of life of the communities for dozens of years ahead ; in this the architects have to bear great responsibility to history and to future generations.

Building work is being carried on by many peoples of our country—the Cossacks of the Kuban and the Don, the mountaineers of the North Caucasus, the Ukrainians of the Dnieper Basin, the Great Russians of Moscow and Smolensk, the Byelorussians of Polesaye, etc. The work of reconstruction must take into consideration the national building traditions of all these peoples, include them in the new plans, blend them competently with that which is new, rational and required by the present level of the science of domestic building with due consideration paid to the geographical and climatic peculiarities of each region. The architect who plans the new towns and villages must consider the historical traditions of life and the building traditions of that particular district and retain in his designs everything that is rational and of historical value and everything that past experience dictates with

regard to types of dwelling houses and peculiarities in town planning ; at the same time the town or village must form part of the landscape. The architecture of the new towns and villages must avoid standardisation in the bad sense of the word for this would rob the towns of their individuality ; he must adopt everything that is valued by the local inhabitants.

The convenience, economic and æsthetic requirements, customs and cultural needs of the people are the first rule that must be followed in reconstruction work. These points in the final analysis determine the nature of the design ; by respecting the past traditions of the people we do not mean that our reconstruction work must become "archæological restoration" ; our builders must also look forward boldly into the future. Reconstruction must also look forward boldly into the future. Reconstruction must improve and perfect the dwellings of the people, correct or radically change defects that have arisen in the planning, either from the point of view of convenience or æsthetics, in the towns and villages that the war has swept away. The growth of some towns may have to be checked on account of their already having developed to a tremendous size (Stalingrad, for example) ; the disposition of the industrial enterprises in the towns must be examined and the more harmful industries removed to the outskirts ; internal transport facilities and their rational distribution, the possibility of the air transport of the future, etc., must all be considered.

In drawing up his plan the builder-architect must be able to foresee the future, he must know and feel the direction which life in the country is taking and he must build so that his buildings and his towns may live and develop with the progress of life, not hindering but assisting that progress at present-day rates. The basic plan, therefore, is one for the economic development of the towns for a period of 10 to 15

years ahead ; one of the guiding rules for architects is to maintain contact with the people by means of exhibitions of designs, discussion with local organisations and with the public and a careful consideration of the suggestions and demands of the people. The plan which Academician Holtz has drawn up for the reconstruction of Smolensk, for instance, was submitted to a mass meeting of the towns-people. The Smolensk Town Architect and the regional newspapers have called a number of conferences of the best builders and professional people of the town ; these conferences produced a number of valuable suggestions and amendments to the plan including the utilisation of waterways, the distribution of the industrial enterprises, and the lay out of the streets and squares.

All these problems which have arisen are being solved by the Committee on Architecture set up by the Council of People's Commissars of the U. S. S. R. and the architects' and builders' organisation in the localities, all of which are subordinate to the committee.

An important role in the solution of our reconstruction problems is played by the Academy of Architecture and its research institutions, the institutes of Domestic Architecture, Public Buildings, Building Technique and Town Planning. The Academy has published a number of model designs and standards for reconstruction work in various parts of the U. S. S. R. a series of simple blue-prints and a number of designs for pre-fabricated houses.

The Union of Soviet Architects is another organisation that is doing super work for the reconstruction of the devastated areas. It has 60 branches to which some 5,000 of the country's best architects belong all of whom are working on the reconstruction of the liberated regions. On its own initiative and in

accordance with government instructions, the Union works on special problems connected with reconstruction, organises contests for the best designs, discusses them at conferences of architects and helps perfect the knowledge of architects in various special branches of their work, etc. The Union takes part in the work of those groups of architects who visit the liberated towns to help in the most urgent tasks of restoration.

### CHAPTER III

## REBUILDING THE RESIDENTIAL SECTIONS OF THE TOWNS

Immediately a town has been liberated the towns-people who have been hiding in woods, swamps, cellars and dug-outs begin to return ; people who have been living in evacuation return to their native hearths, drawn thither by love of their birthplace even though nothing remains of them but charred ruins. They live in odd corners of buildings that have survived, in the dugouts and trenches that remain behind the army and in hastily built huts. They are immediately confronted with the tremendous task of bringing their town back to life.

One of the first and most urgent tasks, of great importance from a sanitary point of view, is the cleaning up of the towns the Germans have left. It is difficult to reconcile existing ideas on German cleanliness and accuracy with the terrible unsanitary condition in which they left our towns and villages ; there were rotting bodies of human beings and animals in the most unexpected places, the manholes in the water-mains were frequently choked with them, there were heaps of excrement around the dwelling houses from which a fearful stench came, latrines were built in the museums and churches and in general there was evidence of an attitude towards the elementary principles of culture and sanitation which is much lower than that of any animal. The towns-people had to remove all this in order to save the town from becoming a hotbed of infectious diseases. In the surviving houses and public buildings the enemy placed delayed action mines and fougasses so that the local people, working together with the

sappers, had to remove all these infernal machines. Within the first 10 days after the liberation of Smolensk over 100,000 kilograms of aerial bombs, mines and charges of explosive were removed from what remained of the houses.

In the early days of the liberation of a town when the people are combatting all these machinations of the enemy, they have to live without water supply, electric light and other communal services. Through all these difficulties and privations in this period of great sorrow, the Soviet people have remained calm and determined for they know that the whole people and their government will come to their help, that their sufferings will be eased and that they will receive help in putting an end to this life of hardship. The first care of the town authorities when a town has been liberated is to provide the people with that which is most essential, first and foremost, with shelter.

The government instruction on "Urgent Measures to be Adopted for the Restoration of the Economy of the Regions Liberated from German Occupation", mentioned above, devotes considerable attention to the question of restoring the dwelling houses.

The following few figures give some idea of the extent of state help in rebuilding the liberated towns. In 1943 over 10,000,000 rubles were expended on the rebuilding of the little town of Rzhev of which only 2,879,800 came from the town budget; the sum allotted for 1944 for the same town is 8,330,900 rubles. In 1944 budget assigned 500,000,000 rubles for the rebuilding of the towns of the Ukraine.

Considerable help in the building of dwelling houses is afforded by credits of 10,000 rubles repayable in six or seven years, and supplies of building

material granted to individuals building their own houses.

The nature of the building work which is now being carried on by the state, by various industrial concerns and by individuals is determined by the requirements and the possibilities of the town concerned. Reconstruction follows three main lines, all of which are put into operation simultaneously. (1) The provision of temporary quarters for the people (dug-outs, hutments and small pre-fabricated wooden houses) to satisfy the more urgent needs of the liberated population, the building workers and re-evacuated people; (2) The building of "intermediate" houses, greatly simplified in construction and limited as far as conveniences and floor space are concerned; (3) The restoration of the old, damaged houses and the building of new houses of such a character as required for long service in a re-built city.

In view of the tremendous work of providing not only the recaptured towns but also a large number of factory settlements with houses and the most primitive amenities (electric light, water supply from wells or standpipes, surfacing of roads), the one-storey house as a "transitory type" and, in some cases, as a permanent feature, is coming into its own. The comparative cheapness of the one-storey house and the rapidity with which large numbers of them can be built added to the fact that a bungalow of this type may be built on a lot some 400 to 600 square metres in extent allowing ample room for a private garden, makes them very popular.

The interests of economy and rapidity of construction made it necessary to design model houses of the bungalow type which can be either partially or completely pre-fabricated. Various designs were drawn up for bungalow houses containing one, two, four and more flats, the most effective use of floor



space was decided on, interior and exterior decoration were planned. By employing rooms of standard sizes parts of the house can be pre-fabricated—interior walls, ceilings, joinery, etc.—while the outside walls of the house can be built of whatever material is available on the building site such as timber, gravel and cement breeze blocks, gypsum, brick, etc., so that from 30% to 35% of the house is produced locally and 65% to 70% is made in a factory belonging to the local building materials trust. Experience has shown that small houses must not be designed merely as a temporary measure but in such a way as permanent dwellings, that there is a possibility of increasing the floor space in the flats. Where single-storey wooden buildings are employed the floor space may always be increased by adding extra rooms of the lean-to type, a practice widely recorded to by the Russian people. One and two-storey houses built of standard blocks can be given additional floor space (about 20%) by rebuilding the attics as living quarters. The most advantageous of all is the small flat to be occupied by one family ; this obviates all the inconveniences of life in a large communal apartment.

The work being done by architects' organisations in designing model houses for factory settlements and small towns will have the effect of improving both the individual house and the town or settlement as a whole from the standpoint of their æsthetic and artistic qualities. This is the first time that experienced architects have had anything to do with the building of small provincial towns and the knowledge and experience which they bring will result in a marked improvement in provincial housing. Many model houses have been designed to embody the principles underlying the age-old architecture of the Russian people, simple in general appearance despite the wealth of decorative detail both inside and out.

For the time being strictly economical standards have to be adopted in planning houses and flats; this is dictated by the exigencies of the times. Everybody realises that these standards do not come anywhere near the ideal for a permanent residence. In the bigger permanent buildings that are being erected the government demands of the architects that the standards of floor space, conveniences and design should come up to the standard that will be expected for a period of at least ten years after the war. Pre-war building experience has provided us with sufficient good examples of dwelling houses which vary greatly in size and in type.

Now a few figures concerning the rate at which towns are being rebuilt.

By the beginning of December 1943, nine months after the Battle of Stalingrad, the city already had a population of 223,000 people. By that time dwelling houses with a total floor space of 400,000 square metres had been either repaired or newly built; here again house-building by individuals who had been granted long-term credits by the government played an important part. Individual builders erected 10,000 houses. Workers are erecting their own timber houses in accordance with blue-prints issued by architects' studios. In 1944 it is planned to build a further 9,000 small houses of this type. In Dniepropetrovsk, where the Germans destroyed 4,843 dwelling houses, buildings with a total floor space of 20,000 square metres had been restored by April 1944. In Kharkov, where the Germans destroyed 1,401,000 square metres of floor space the 1944 building plan calls for the rehabilitation of 370,000 square metres; during four months of the building season 169,400 square metres was rebuilt of which 48,000 square metres was rebuilt by the occupants of the houses themselves. In Rzhev about 1,000 houses had been rebuilt (floor space 64,000 square metres)

by April 1944; in addition a number of public buildings and industrial organisations were reconstructed. During 10 months of 1943 a total of 12,726 living quarters were rebuilt in the factory settlements and district centres of Smolensk Region and 34,314 people took possession of them. In the towns and factory settlements of Kalinin Region where the Germans destroyed and burnt down 779,000 square metres of floor space in dwelling houses 264,000 square metres were rebuilt during 1942 and 8 months of 1943. On the 1st January, 1944, there was a government check-up of the work of restoration. The inspection showed that in 9 regions 326,461 houses had been rebuilt of which 60,411 were in towns and factory settlements and possessed a total floor space of 3,648,943 square metres; 266,060 houses were rebuilt in the rural areas. Altogether 1,813,614 people moved into the rebuilt or newly built houses.

At the same time as the houses are being rebuilt, work is being done to restore the public utilities of the towns—transport, water-mains, sewers, electric light. In Kalinin (Tver), for example, the water-mains and sewers have been completely restored since the liberation of the city and the tramway service has been extended over an area greater than in pre-war days. Within six months of the liberation of Rostov-on-Don 250 kilometres of water-mains and 150 kilometres of sewers had been rebuilt. Similar energy is being put into the rebuilding of the power stations that are so important for the life of the cities and for the industrial enterprises. In May 1944 over 50 turbines and generators, 70 boilers, over 4,000 kilometres of transmission line and over 200 booster stations, all of which had been destroyed by the Germans on formerly occupied territory, had been repaired and were functioning. Amongst the power stations that have been repaired there are such important stations as Stalingrad, Zuyevo

(Donets Basin), Voronezh, Kiev and others. In the Donets Basin the main district power stations belonging to the People's Commissariat of Power Stations are now working.

The process of restoring the dwelling houses and amenities of the towns which we have just described is taking place in strict accordance with individual plans for the reconstruction of each town.

## CHAPTER IV

# TOWN PLANNING

Town planning has always occupied a prominent place in the history of Russian civilisation. At the very dawn of the history of Russia the Norsemen called her the "land of towns". The Russian word "gorod" or "grad" originally meant a fortress. Fortress towns protected the peaceful labour of the cultivator and were centres in which craftsmen gathered. The building of towns on the border between Russia and the steppes was the great service which Prince Vladimir the Holy rendered his country in the 10th century. The first information we have concerning Russian architects dates back to the 11th century when they are referred to as "gradodelets", i.e., town-makers. From then on, throughout the whole history of Russia, we hear of new towns being built as Russia's frontiers were extended beyond the White and Baltic seas in the north. The centuries accumulated the experience of the best Russian masters who built the splendid architectural ensembles of Moscow with its Kremlin, Yaroslavl, Pskov, Novgorod and many other towns. Russian architects began working on the idea of rational planning and building towns at a very early date. The ideas occurred as a result of the establishment of a unified Russian state by Ivan III and his successors. St. Petersburg, built by the labour of the Russian people and the genius of Peter the Great at the beginning of the modern era made Russian town-planning world-famous for the severe beauty of its majestic ensembles and the regularity of the further growth of the newly-built cities.

At the same time as these tendencies are seen in the building of big cities which enjoyed the full

attention of the government and the architects, we find the more chaotic growth of the majority of smaller settlements, sometimes even large industrial centres, subordinated entirely to the interests and convenience of the factory owners who built slums for their workers on the outskirts of the towns and sumptuous central sections, completely disregarding the requirements of town-planning and social hygiene.

During the Soviet period great efforts have been made to improve the planning and building of the towns. Fine large dwelling houses have grown up in the working class districts, theatres and clubs have been built and the dirt and chaos of the slums gave way to whole sections of newly constructed buildings. Many examples of the transformation of old Russian towns in the last years that preceded the war could be given. Yuzovka, a foul, smoky little town in the Donets Basin, with its ramshackle collection of miners' huts known as "Dogsville", grimy beneath its coating of coal dust, grew into an important district centre with a population of half a million. The tiny, lopsided log and turf cabins have been replaced by comfortable brick houses on asphalted streets with an abundance of trees and public gardens. The sum of 4,000,000 rubles has been spent on planting trees in the streets and gardens. Yuzovka changed its name to Stalino, metropolis of the Donets Coal Field. This story is typical of the reconstruction of hundreds of old Russian towns.

In general, however, the general plan of a town, especially where it has a long history, could not be changed to any great extent. Today our architects have to build new towns rather than restore old ones. Some of our towns have been ruined to such an extent that it is not worth while retaining the old lay-out of the town for the sake of a few buildings that survived and so repeat the old defects due to the un-

planned growth of streets, etc. In their efforts to destroy our towns, the Germans turned first of all to those buildings which had been erected during the last years, that is the best cultural institutions—theatres, schools, clubs and especially parks and gardens of which large numbers had been laid out in the years immediately preceding the war. A wide belt of orchards and decorative woods protected Rostov-on-Don from the dry winds; here the Germans destroyed hundreds of thousands of trees. In Smolensk they cut down 40,000 trees in the parks and gardens. Whole town sections were converted into wastes of ruin. It is quite clear that under these circumstances the architect should not subordinate his work to the task of "historic reconstruction" but rather to that of planning a new socialist town to meet needs that will arise during many coming years of economic and cultural development. It may happen that a town will change its social character. There is the little town of Istra; for example, a District Centre of Moscow Region which lies amongst wooded hills on the banks of a picturesquely winding River Istra; it is to be turned into a northern health resort, a playground for the working people of Moscow, with little country cottages and tourist hostels in quiet and picturesque corners, with boarding houses, hotels, etc., in the town. Other towns on the contrary will have their old economic or administrative character brought out more strongly by the process of restoration and replanning.

Planning must also take into consideration the customs of the inhabitants and the cultural and æsthetic demands of the Soviet people.....All these points put together require that the architect produce designs of high artistic value, that the town as a whole be planned to harmonise with the relief and the character of the local landscape. In view of the great responsibility of restoring Soviet towns the

government has placed the work in the hands of the country's leading architects; Karo Alabyan, the Vice-President of the Academy of Architecture heads the group of architects rebuilding Stalingrad, the plan for the restoration of Voronezh is the work of a group of architects under the direction of Academician Lev Rudnev, Academician Shchusev is rebuilding the pretty little Moscow town of Istra, Academician Georgi Holtz is working in ancient Smolensk, Rostov-on-Don is being rebuilt by Academician Vladimir Semenov while Academician Nikolai Kolli has charge of the work at Tver (Kalinin). Town-planning is the work of groups of architects of the most authoritative institutions of the country such as the Academy of Architecture of the U. S. S. R., the State Town-Planning Institute and similar organisations.

We can already get an excellent idea of the future towns from the plans that are in preparation although most of them have not yet been completed in detail.



## CHAPTER V

# THE REBUILDING OF STALINGRAD

When we begin to talk of rebuilding the Soviet Union, Stalingrad is naturally the first town that comes to mind. During the past few decades the town of Stalingrad has played an important role in the history of Russia. The town was founded towards the end of the 16th century when Russian frontiers reached the Volga. In 1615 a town was built on the present site which is a fine defensive position protected by the steep banks of the Volga and the delta of the River Tsaritsa from which the town got its first name, Tsaritsyn. At first it was an outpost, a fortress town. In 1780 there were still only 618 inhabitants but their number had increased to 7,027 by 1862. From then on, in connection with the building of the Don railway the town grew rapidly and became an important transport centre connecting the Kuban, the Caucasus, Rostov and the Donets Basin with the centre of the country ; steamer traffic on the Volga had also developed by this time. By 1901 the town had 70,000 inhabitants ; by 1917 the town had a population of 150,000, and had become one of the biggest trading and industrial centres in Russia.

Tsaritsyn became famous in 1918 when the interventionists together with the White Guards made three assaults on the town and then surrounded it in an effort to cut the centre of the country off from the grain growing regions. Under the leadership of Joseph Stalin, who was sent to Tsaritsyn by Lenin, the attacks were all repulsed ; the battles at Tsaritsyn played an important part in determining the course of the war fought by the young Soviet Republic. In 1924 the town was awarded the order

of the Red Banner and in 1925 was given the name of Stalingrad.

The town underwent a complete transformation during the period of the Five-Year Plans. The huge Stalingrad Tractor Plant, the first child of the First Five-Year Plan was put into operation in 1930; this was followed by a number of other important factories—leather goods, chemical, canned goods and one of the largest shipyards in the country building all-metal self-propelled barges. Amongst the old factories that were reconstructed are the “Red October” Steel Mill producing high-grade steels, the “Barricades” Escalator Plant and many others. The town naturally grew in accordance with the increase in the number of factories and by 1941 had about half a million inhabitants. An extensive green belt surrounded the city and protected it from the dry winds and dust of the steppes.

The city of Stalingrad became one continuous town together with its suburbs, the planning of which was very unusual in character; it ran along the Volga for 50 kilometres, was nowhere more than 5 kilometres in width and had a number of main arterial highways running its whole length. It was this peculiar shape that helped Stalingrad in its titanic struggle against the German armies. The city-hero, however, that had greatly increased its fame during the fighting from 1941 to 1943, was completely destroyed....

The last Germans were cleared out of Stalingrad on the 2nd February, 1943. After the battle the city was one huge conflagration. It was a devastated area that had been completely ploughed up by artillery and aerial bombardment filled with the weirdly shaped and monstrous ruins of dwelling houses, public buildings and factories. The Germans destroyed about 40,000 living houses with floor space of about 4,000,000 square metres, 120 kilometres of tramway

line, 300 kilometres of water-mains, all the paved streets and roadside trees in the town, 14 parks, 102 schools, hospitals with 4,500 beds, 3 theatres, the Pioneers' Palace, and many other fine buildings. During the first few days after the battle the town was almost deserted. In Yerman District there were 33 inhabitants, in the Central District 751, in Metal city, 764. Before the Stalingraders could begin work on rebuilding they had to remove from the city precincts over 128,000 dead Germans and about 11,000 dead horses; 1,063,000 mines were discovered and rendered harmless, 18,000 of them on the territory of the factory. Then the city had to be cleared of the remains of the German war machines — the huge cemetery of German aircraft, tanks and trucks organised outside the city bounds was several dozen times greater in area than the Moscow Trophy Exhibition.

The first builders in Stalingrad lived under extremely difficult conditions; the conditions were the same as those at the front for the workers live in trenches, dug-outs, bunkers and tents, taking the places of the soldiers who had advanced to the west. The Stalingrad Reconstruction Board itself was established in the cellar of a ruined building during the first weeks of its existence.

The preliminary plans for the reconstruction of Stalingrad were the joint work of the Academy of Architecture of the U. S. S. R. the State Institute of Town Planning and the Architectural and Planning Studios of the People's Commissariat of Municipal Building of the NSFSR. A government commission approved the plan drawn up by the Academy of Architecture (the architects were: Academician Karo Alabyan, Academician Alexei Shchusev, M. H. Polyakov, D. S. Sobolev, A. A. Dzerkovich, A. E. Pozharsky and Engineer V. A. Butyagin.

The restoration of a town wrecked to the extent of Stalingrad is tantamount to building it anew. The new plan, therefore, was able to eliminate the defects that had arisen during the development of the former city, which of course, grew naturally and was never planned as a whole. Although the town lay along the banks of the Volga the railway cut the city off from the river and there was no regular embankment. The streets were laid out checker-board fashion regardless of the peculiarities of the terrain which has a clearly defined system of terraces, hills and slopes; there were no distinctive main streets and squares. The railway and the station Stalingrad I, situated in the centre of the city cut it in two and made communication between the parts very difficult. The number of parks and gardens in Stalingrad was insufficient and the gullies that ran through the city down to the Volga were allowed to run wild. From a purely architectural standpoint the chief defects were the absence of any system, in some districts the buildings were too high, there were no monumental ensembles, the favourable relief of the city area had not been used so that the high points with their excellent views were completely lost. The new plan takes these excellent natural features into consideration.

All the residential districts of the city will now have direct access to the Volga by means of a granite-faced embankment giving a perfect view of the great Russian river which at Stalingrad is 2 kilometres wide. A new open space is planned on the Central Embankment in the form of a long rectangle; this will connect the centre of the city with the Volga. This new square will be connected to the old City Square by a broad avenue and will form the central architectural group of Stalingrad.

On this central area of 1 x 0.5 kilometres all Stalingrad's best buildings will be erected. The

central motif employed in these, as in all Stalingrad's buildings, is Russian classical architecture with a slight flavour of the east which must be given a place in Stalingrad architecture as the city stands on the old route that joined the east and the west. In the very centre of the group will stand a monument to the Stalingrad victory, a tower nearly 200 feet high surmounted by a bronze statue of a trumpeter proclaiming victory; from the terrace on which the tower is built there will be a splendid view of the city and the river. Close beside the tower it is planned to build an Opera House to hold 1,500 visitors. Opposite the Opera House there will be the Stalingrad Defence Museum. We plan to reconstruct the old "Square to the Memory of Fallen Soldiers" and between this square and the Victory Monument to build a triumphal arch giving on to the "Avenue of the Heroes of the Stalingrad Defence." The frontal facade of the new building for the City Executive Committee will also be on this square. It will be a five-storey building with a ten-storey tower, surmounted by an oriental gilded dome, at the corner. Designs for other large central buildings are also being prepared such as the railway station, hotels and similar public buildings.

The new city will retain its old shape and will continue to stretch along the Volga although the residential sections will be brought nearer the river in order to satisfy both sanitary and transport requirements. The huge city will be split into sections by the introduction of parks.

The general planning of the streets will follow the lines of the ground contours. The outer edge of each terrace, from which a splendid view of the Volga may be obtained, will carry a boulevard. The highest points in the city are planned as open

squares where the tallest public buildings and dwelling houses will be built. These groups of tall buildings will give the city a distinctive silhouette. It is planned to build a very wide boulevard through the centre of the city.

The extreme length of Stalingrad and its position along the banks of the Volga determines the direction in which the three main arterial roads will run. The lower arterial road will connect the centre of the city with the big Stalingrad Park and with the industrial sections; the central road connects the various residential sections with each other and with the centre of the city while the upper arterial road will run along the western outskirts of the city and form the main motor road for heavy traffic. Diagonal cross roads will connect these three arteries; the gullies leading down to the Volga will be laid out as parks and shady avenues will run through them; from the centre of Stalingrad a wide, tree-lined avenue will run direct to Mamayev Kurgan and the memorial park which will be laid out on that hill. The railway will run through cuttings over a sufficient length to enable easy transport facilities to be organised between the various city sections. Forest massifs will be planted around the town to protect it from the dry winds and dust of the steppes.

The terraced nature of the terrain forms the basis for the whole plan of the city's reconstruction. The nature of the ground will give the city its picturesqueness and will determine the nature of the buildings, their architectural design and their height. The bigger buildings (4 and 5 storeys) will be built only in the central sections of the city: along the embankments the houses will be mainly two storeys in height with an occasional bigger building to prevent monotony; the level plateau of the second

terrace will carry small dwelling houses. There will be plenty of trees and shrubs in the residential sections and their roads will carry no heavy transport. Apartments will be built separately for family use and will be provided with the maximum of modern conveniences. The architects working on the new city of Stalingrad aim at providing the inhabitants of the heroic city with every possible convenience.

## CHAPTER VI

# THE REBUILDING OF ROSTOV-ON-DON AND VORONEZH

The German occupation caused terrific damage to another important industrial centre of our country, the town of Rostov-on-Don. The fact that 700,000 square metres of floor space in dwelling houses was completely destroyed and that a further million square metres are in need of complete rebuilding is sufficient to show the extent of the devastation. In 1944 a sum of 30,000,000 rubles was allotted for reconstruction.

The great extent of the damage in Rostov, although, of course, it is incomparably less than that of Stalingrad, brought forward the question of making great changes in the planning of the city. Academician Vladimir Semenov, who has charge of the building work at Rostov, is introducing a number of improvements into the general plan of the town. The old plan did not take into consideration the town's position on the River Don, a position which is extremely favourable from the architectural viewpoint. In the new Rostov the banks of the Don will be the most beautiful part of the city. The granite-faced embankment will carry a boulevard which will be a hundred metres in width at some points, trees and shrubs will form part of the general architectural plan and in several places recreation grounds, "Parks of Culture and Rest" as we call them in Russia, will reach down to the river with all their trees and greenery.

The Germans played particular havoc with Engels Street, the central street of the city, where they blew up all the main public buildings, the huge Maxim



Gorky Theatre, the City Soviet headquarters, the Conservatory of Music and others. This central artery of the city is now being replanned on an even grander scale. According to the new plan it will contain a number of extensive squares. The square nearest the River Don, Theatre square, has access to the river by means of a monumental staircase flanked by public gardens. The square on which the headquarters of the City Soviet will be built is planned as a single architectural ensemble with a garden containing sculpture groups laid out in the centre; the sculptures will depict the liberation of the city from the Whites during the Civil War. A new centre is being built in place of the old town market; this will take the form of a forum dedicated to the memory of those who liberated Rostov from the Germans. The main city square, which is now a mass of ruins, is planned as a city centre with museum buildings, arcades of shops, hotels and municipal buildings; this square is situated on the high bank of the River Don and its buildings will be visible for many miles from the steppes that surround the city.

The problem of giving the city as a whole a new architectural form is one that presents great difficulty. The architecture of old Rostov, like that of many towns in south-west Russia, which grew up at the turn of the last century, is very rich but completely devoid of elegance and individuality. Academician Semenov proposes to introduce some of the classic forms used in the architecture of the ancient towns of the Black Sea basin in addition to the Russian Empire and Russian classical styles.

The planting of trees is of exceptional importance to Rostov as the city suffers from the dry steppe winds. During the pre-war years protection was afforded by the orchards and masses of decorative trees that were planted in a belt around the city.

They had just reached their full growth when the war broke out and the Germans destroyed them, hundreds of thousands of valuable trees. According to the plan of reconstruction, Rostov will become a garden city, with 28 square metres of garden to every inhabitant of the city. By the autumn of 1943, 90,000 trees had been planted and in the spring of 1944 a further 50,000 were put into the ground.

Another river city is Voronezh which was first built as an outpost on the river of the same name, a tributary of the Don, in 1586. The picturesque fortress city stood guard over the unruly Tatar steppes. A century later the city played an important role in Russian history...it was here that Peter the Great built the first Russian shipyards and sent his fleet from Voronezh into the Sea of Azov to fight the Turks. Voronezh's claim to fame in the 19th century is as the birthplace of the people's poets Ivan Nikitin and Alexei Koltsov, who sang the praises of their native region in wonderful poems. The town had retained a considerable number of ecclesiastical and civil buildings that had been erected during the 17th and 18th centuries. Under Catherine II the planning of the town was greatly improved, a central street was planned to connect the river with a central city square. The 19th century, however, saw a lot of chaotic building which completely disregarded the beauty and general planning of the town; industrial enterprises sprang up within the confines of the city, streets end in cul-de-sacs without reaching the river, houses built on the edge of the slopes of the plateau have their backs to the river.

All these defects must be removed during the reconstruction of the town. Academician Lev Rudnev, the architect in charge, is trying to make the greatest possible use of the extremely picturesque situation of the town; he proposes to bring a number of streets down the slopes to the river. This

side of the town was one of the most attractive spots where white churches and little houses nestled amongst green trees and bushes; on a cape jutting out into the river stood the 80 metre high belfry of the Mitrofan Monastery the central vertical feature in the Voronezh landscape. The Germans made a fearful mess of the town—between 80% and 90% of its buildings were blown up or burnt, amongst them the university, the town theatre, the headquarters of the regional executive committee and many other important buildings. In Voronezh as in Kalinin (to be dealt with later) the skeletons of many buildings remain in condition good enough to warrant restoration. The foundations and the brick boxes of the houses show where the old streets once were and compel the town planner to undertake the intricate task of combining the old and the new.

The old part that remains, however, is now altogether an obstacle that has to be surmounted. Academician Rudnev is not only an architect, he is also an artist who is fond of old arts and is inclined to deal gently with the relic of the past. He does not intend to rebuild the city so that it will be unrecognisable, he wants to retain and improve the old Voronezh with all its beauty and charm. This of course, leads to a number of problems of style and character in building, the selection of architectural forms and materials and in determining the scale and composition of the groups of buildings. Voronezh took form during three centuries and each added its contribution to the art of the city. Rudnev has selected early 19th century as his style, the period of Russian classicism, the spirit of which is felt with great strength in the architecture of old Voronezh. The colour of the buildings is closely connected with this decision; Lev Rudnev has categorically rejected cement and ferro-concrete—their grey-green barrack-like tone would completely ruin the lively

larity of the style. White was the predominating colour in the town and it blends beautifully with the green of the chestnut trees and the poplars. Russian classic style does not necessarily require stones as can be seen in the numerous examples of "wood empire" that are famous for their warmth and comfort.

The administrative buildings of the central part of the city are to contain three storeys. In this way the architect will retain the healthy principles of the classic style which produced many fine government and office buildings. The same modest dimensions will be applied to war memorials in pursuance of a wise old aphorism that "magnitude is not majesty." Nevertheless the silhouette of the town will be quite picturesque, the introduction of steeples and towers provides a certain harmony with the old outline of the city with its belfries and churches.

## CHAPTER VII

# THE REBUILDING OF KALININ, SMOLENSK AND ISTRA

The City of Kalinin, the ancient town of Tver, was one of the most beautiful and splendidly planned cities in Russia. It lay on the route from the old capital of St. Petersburg to Moscow and therefore attracted the attention both of the government and of architects. After the great fire in 1763 the town was rebuilt in accordance with a general plan drawn up by the Russian architect Matvey Kazakov who also designed the central architectural ensemble in the city—the splendid palace used as a royal road house from which Kazakov's "Grand Perspective" opened up in the form of the former Million street, broken up at regular intervals by three beautiful squares, palace, octagonal and post squares. The Empress Catherine II spoke truly when she said "The Town of Tver, after St. Petersburg, is the most beautiful town in the empire". In the strict but beautiful forms of the town's architecture was that spirit of Russian classicism which gives the "Northern Palmyra" its individuality and the general idea of the "trident" of main streets in Tver was undoubtedly borrowed from the planning of St. Petersburg.

The town of Kalinin (Tver) was liberated from the fascists on 16th December, 1941. I saw it soon after, in the spring of 1942 when the work of restoration was only just beginning. The picture of devastation was a truly terrible one. Whole blocks of houses lay in ruins, the smoke-blackened windowless walls of houses rose like weird decorations along the streets. The twisted girders of the bridge across the Volga were so distorted that they looked more like pieces

of ribbon blowing in the wind than steel structures. The destruction, however, was not so great as to warrant any replanning of the city. The city authorities, on the contrary, in concord with the desires of the people, gave the architects the task of restoring Kalinin's former beauty, of restoring the beautiful architectural ensembles that Kazakov built.

A group of architects under the direction of Academician Nikolai Kolli is approaching this task very gradually and taking great pains over it. The planning of old Tver does not need any great amendments made to it but this does not mean that modern Kalinin, a city that has grown far from the Volga, cannot be improved either from the viewpoint of its municipal amenities or its architecture.

The town was planned at a time when the Volga was barely navigable at this point; the most important traffic lane through the city was the post road from Moscow to St. Petersburg. The three main roads of Tver, the "Trident" served this purpose and although they ran parallel to the river, they seemed to have turned their backs on it. The architects are now planning to include the river in their design as an integral part of the city, for since the Moscow-Volga Canal was built the river contains much more water, has become an important passenger and goods traffic lane and on the bank opposite Kalinin, at the confluence of the Volga and the Tversty, an extensive river station has been built. This part of Kalinin which lies across the Volga from the Leningrad highway, suffered very badly and will have to be entirely re-built. It is planned to build a wide embankment separated from the row of houses by a belt of green boulevards; the buildings have their faces to the river, to the south, that is, and can be seen, from the old city throughout the entire length of its riverside. This facade of Kalinin is the subject of particular

attention, for the builders of new Kalinin see in this a uniform architectural panorama centring around a dominant vertical feature in the form of a tower at the river station. A similar vertical structure, possibly a monument to the liberation of Kalinin, will be built within the precincts of the old Kremlin of Tver which, as researches have shown, had a similar structure in the 14th and 15th centuries in the form of the huge decorated belfry tower of Ivan the Merciful.

The work of restoring the damaged buildings and the old architectural ensembles is limited to that simple and clear style which marks the work of Kazakov. Classicism is here the fundamental and natural style predominating in the city. "We are listening to Kazakov's tuning fork the whole time," says architect Kolli. This "tuning fork" is their guide in seeking the more artistically rational standards for the buildings to be erected in various parts of the town and in carefully preserving the valuable old buildings. A number of houses in a main street built in the 18th century, for example, are having storeys added to them in such a way that the increased size of the buildings does not produce any discord with the surrounding ensemble. In rebuilding the structures on the semi-circular Soviet Place (Kazakov's Post Square), not only the forms and the principles of composition of the buildings concerned are taken into consideration but also other works of Kazakov, particularly the University of Moscow. In concord with this the architects are planning as porticos the lower parts of those blocks of buildings which stand on Soviet Place and separate the "trident" of streets which have their beginning here.

Those new buildings which have been damaged by enemy action and which took little account of the general architectural features of the city are being redesigned. The huge building of the Theatre of

Drama, for example, is being rebuilt more in accordance with the dimensions of the surrounding buildings and, together, with the nearby Red Army Club, the theatre forms one of the porticos of a small square which in turn leads to a boulevs connecting it with the market square.

The construction of Tver-Kalinin depends entirely on local building industries. Local brickfields, lime quarries near the Town of Staritsa that were used as early as the 14th century to produce lime and building stone, tile works that produce rooftiles and ceramic tiles and the excellent timber of the region.

Smolensk is one of the oldest Russian towns and one that holds a place of honour in Russian history ; Smolensk shared with Novgorod and Pskov the honour of guarding the western frontiers of Russia for many centuries. Enemy eyes were often turned on this city, its walls have witnessed fierce conflicts, many conquerors have seized fair Smolensk lands but all, sooner or later, have been driven out again. The town not only carried its sacred traditions of valorous deeds and cultural achievements through the years of struggle, but also preserved a number of monuments of the past—12th century churches, gigantic fortress walls nearly seven kilometres in length that were built by the Russian architect, Fedor Kon, at the end of the 16th century—Isar Boris Godunov called these walls the "Necklace of Russia". In the centuries that have elapsed since then, Russian architects have erected many new buildings in the city and have preserved that majestic but nevertheless intimate atmosphere of the old town, showing astonishing tact and artistic feeling in their work. The graceful belfries and domes of churches rose up against the cherry orchards. Stendhal, who had seen all the famous European cities, was a great admirer of Smolensk and called it one of the most beautiful cities of the old world. This town was destroyed by the Germans.



They blew up and set fire to its houses ; 90% of the dwelling houses in Smolensk have gone and only the barest traces remain of the poetically beautiful cherry orchards. Monuments of ancient architecture have received very serious damage.

The restoration of such a city is a great responsibility for the architect. Academician Georgi Holtz who is directing the studio working on the plans for the reconstruction of Smolensk is an artist of great tact and talent and a lover of Smolensk. He shows great feeling in the way he approaches all questions concerning the restoration of the city, and he invites the public to discuss the plans which he is drawing up. Holtz may truly say that every citizen is taking part in the rebuilding of Smolensk. It is an interesting fact that his remark on the desirability of restoring the parks and gardens at the earliest possible moment was put into operation with astonishing rapidity ; by the spring of 1944 about 6,000 trees from 10 to 15 years old had been planted in the city.

It is characteristic of Smolensk and other towns that the inhabitants that have returned all strive to build their houses on the exact sites of the old houses ; this is an expression of the townsman's desire to rebuild his town as nearly like the old as possible. Academician Holtz has an excellent understanding of this feeling. He has made hardly any changes in the old centre of the city which stood on picturesque hills 85 or 86 metres above the level of the Dnieper and was surrounded by the monumental walls of the Kremlin. He not only wants to restore their ruined sections, but also to preserve that special spirit of the Smolensk landscape which produced the abundance of gardens with little cosy houses on the slopes of the hills and the splendidly placed churches which formed part of that landscape.

The traveller gets this impression of Smolensk immediately he enters the town ; as he leaves the

station he sees on the station square the ancient church of Sts. Peter and Paul with foundations dating back to the 12th century and a splendid 18th century restoration.

The town grew up and developed around its ancient centre and the plan of reconstruction follows this same line; the fantasy of the architect may have full play here and Academician Holtz is planning splendid office and public buildings for the administrative centre of Smolensk. In addition to solving purely architectural problems the builders are also organising and extending the local building materials industry, increasing the output of lime, ceramics and other items necessary.

The ten year plan to rebuild the little town of Istra offers considerable interest. The plan was drawn up by Academician Shchusev, one of the leading Russian architects and a connoisseur of ancient Russian architecture.

The town of Istra (formerly Voskresensk) was famous in pre-war days for its splendid architectural treasure house—the cathedral of the New Jerusalem Monastery built in the 17th century by the Patriarch Nikon, a gem of Russian national architecture destroyed by the enemy who left behind him nothing but ruins and ashes. The Germans burnt down the picturesquely situated little town of Istra, built on a number of low hills; the town was a favourite place for excursions and outings from Moscow, a place where the Muscovites could enjoy the tranquil beauty of the Russian landscape and at the same time, if so disposed, enjoy a real scholarly holiday, for in addition to the ancient monastery with its wonderful museum and library there was also a regional museum whose excellent collections showed the history of culture and all the natural wealth of the district. The town and the museum were destroyed by enemy action.

The restoration of Istra will make it Moscow's playground, a purpose for which Shchusev is employing all the natural resources of the town and the region ; the architect has also produced a plan for the restoration of the monastery for the town must get back this wonderful national monument. Here again the architect has to combine the work of restoring a famous historical monument and of rebuilding a town with all its public buildings and dwellings, that is, he must produce that which modern housing norms regard as essential and translate it into terms of traditional national motifs.

The old town was planned in the 18th century as a series of rectangular blocks with an oval place where the main street of the town crossed the road leading to the Monastery ; this plan made excellent use of the relief and the local landscape. The new plan, therefore, follows the old, with the streets widened to form boulevards and some diagonal streets added ; this gives greater variety and picturesqueness to the composition of a town which occupies an area of 750 acres. The plans call for three squares in the town—administrative ( $6\frac{3}{4}$  acres, trading  $6\frac{3}{4}$  acres and central squares  $2\frac{1}{2}$  acres) which are formed at the crossings of the main town street and the boulevards. Administrative square will contain the buildings of the District Executive Committee with a high square tower arcaded at the top, a large hall for meetings and a facade look-out on public gardens and the square where demonstrations will be held. From here there is a direct view towards the New Jerusalem Monastery and the main park of the health resort. The Executive Committee building will be carried out in red brick with a white stone arcade and an abundance of majolica decoration, concurring in style with the motifs and forms of the 17th century. This central building determines the character of the

architecture of the town as a whole ; the buildings of the town will make full use of the rich heritage of Russian architecture with its bright and jolly decorations which are admirably suitable for the summer cottages, hotels, tourist hostels and small houses in general. The second most important building in Istra will be its kursaal in the town park with a theatre, restaurant and open-air theatre for summer performances. A hotel building, two boarding houses and the building of the executive committee will form an ensemble on the crest of a hill which give the new Town of Istra its characteristic "fairyland" appearance.

The rectangular place known as "trade square" with its arcades or shops, hotels and dwelling houses is joined to the third square by a wide boulevard—this forms a kind of "city" in future Istra.

The centre of Istra will contain mainly three storey buildings which will decrease to two and single storey buildings nearer the outskirts of the town ; each building site will be from 600 to 1,200 metres so that every house will have its own garden, orchard or vegetable patch. In general there will be 100 square metres of garden or park for every inhabitant (taking the figure of 15,000 as the population), excluding the huge sports ground that will be built on the opposite bank of the river. Istra will be a garden city in every sense of the word and the main motor road will pass around the outside in order not to disturb the tranquility of the town.

The cozy and picturesquely beautiful forms of old Russian architecture enter into the designs that Shchusev has produced for the dwelling houses ; his prototype is the Russian log cabin with its abundant carved woodwork and painted detail. Around the town there will be a ring of rest homes, country cottages, sanatoriums and other buildings in the most picturesque corners of the district of Istra.

## CHAPTER VIII

# REBUILDING THE UKRAINE

The restoration of the towns of the Ukraine is going forward with the same intensiveness as those of Russia ; here again the builders are faced with a number of architectural and technical problems.

Kiev, the capital of the Ukraine, is one of the most beautiful cities of the south and of the whole country. The name of Kiev is connected with the present and the future of reborn Ukraine and with the ancient past of the Russian people. Kiev was the first capital of the Russian state, a centre where huge buildings were put up in the 11th and 12th centuries, some of which have been preserved to the present day. Kiev was the "mother of Russian cities" the ancient law giver in matters cultural and artistic. The Russian people followed with pain and anguish the fate of their holy city when it fell into the hands of the enemy. The Germans desecrated the holy places—the Cathedral of the 11th Kiev Pechersky Monastery, the oldest in Russia, was blown up by the invaders ; the museums and the libraries were sacked and burned. The enemy destroyed the central part of the city leaving nothing but ruins over an area of 125 acres. The greatest damage was done in Kreshchatik, the main street of Kiev, an avenue a kilometre in length with many fine public and office buildings and dwelling houses of which nothing but skeletons or ruins remained.

Kreshchatik was one of the busiest streets of the city, it led to the bridge which in turn gave on to the beach and the parks and gardens on the banks of the Dnieper. Kreshchatik was beginning to be crowded.

in pre-war days its width of 36 to 44 metres being insufficient for the needs of the growing town. The Kiev Board of Architecture has produced a plan for considerably widening Kreshchatik and making it a magnificent main artery 52 to 60 metres in width with wide and convenient pavements. The few remaining buildings will be moved back and Kreshchatik will be rebuilt with six-storey buildings: they will all be public and office buildings such as hotels, banks, cinemas, department stores, etc., with shops, restaurants and cafes on the ground floors. The architectural form of these buildings follows Ukrainian building traditions and local granite, marble and Ukrainian labrador stone will be used to face them. An abundance of trees will make the new Kreshchatik even more picturesque than the old.

The streets adjacent to Kreshchatik will also be widened. The Shevchenko Boulevard with its fine poplar trees will become a main artery leading directly to Pechersk and the Dnieper bridges. The widening of the city squares will help solve the traffic problem and will permit certain architectural improvements to be made. A funicular railway will run down to the river from the rebuilt Bogdan Khmelnytsky Square. In the new Victory Square a monument will be erected commemorating the liberation of Kiev; the monument was designed by Academician Karl Alabyan; a monumental staircase and a funicular railway connect Victory Square with the banks of the Dnieper.

That part of Kiev which lies on the right bank of the Dnieper will remain within the limits laid down in the pre-war plan but the industrial concerns that are within these limits will be moved to new sites. It is planned to lay out new botanical gardens on the site of the old "Menagerie" and to build a number of small private houses and cottages in this picturesque district. On the left bank there will be a "Hydro-

park" and lower down stream a district devoted entirely to rest homes.

In the new Ukrainian city of Zaporozhye, in the immediate neighbourhood of the famous Dnieper power station, dwelling houses with a total floor space of over a million square metres were destroyed. The restoration of this city has been entrusted to architect Georgi Orlov who took part in building the original city in 1927. The new plan provides for uniting the new city of Zaporozhye and the old town of Alexandrovsk by filling in the area between them with small houses; the village of Voznesensk, which was completely destroyed by the Germans, formerly stood on this territory. The Germans barbarously destroyed all the trees in Zaporozhye but the new plan will bring back to the city its wealth of greenery; the central park will be extended from five to twenty acres and all the other parks, gardens, avenues and boulevards will be restored while large numbers of trees and shrubs will be planted between the dwelling houses.

One of the most difficult tasks confronting the architects rebuilding Kharkov, twice wrecked by the Germans, is the restoration of the huge 14-storey industrial house, the largest house of its type in the U. S. S. R. This building contained the offices of 100 republican and regional concerns and dozens of research organisations and institutes. The Germans burnt and badly damaged the building. By the middle of May 1944 about 6,000 square metres of floor space had been restored and some 2,000 square metres of windows had been glazed; 12 organisations already have their offices in the building. The sum of 17,000,000 rubles has been allotted for the rebuilding of industry house of which 9,000,000 will be expended in 1944 for the restoration of a further 60,000 square metres of floor space, the glazing of about 60,000 square metres of windows, the repair of

the water supply, drainage and electric lighting circuits.

The architects working on the restoration of Kharkov and other young cities in the southern part of the Soviet Union are faced with a general problem, that of improving the general architectural form of the city concern. The huge far-flying city of Kharkov was as varied in style as Rostov but had no architectural individuality. Architects are working at present on methods of improving the general appearance of the town and giving it a uniform architectural design with a real architectural centre.

The group of architects working on the rebuilding of Poltava is faced with very special tasks, for Poltava is a city that is famous in the annals of Ukrainian and Russian cultural and military history. Like many other Russian towns Poltava was buried deep in greenery, in chestnut, poplar and acacia trees. The Germans destroyed all the trees, destroyed the monument to Gogol who went to school in Poltava, destroyed the monument to Taras Shevchenko and to the father of modern Ukrainian literature, Kotlyarevsky; they blew up the Museum Buildings, a fine example of Ukrainian architectural style. The architects aim to revive the old Poltava with its wonderful landscapes and historical buildings. The monuments have already been rebuilt and the planting of trees and shrubs has begun.

In discussing the restoration work that is going on in the country whilst the war is still in progress we must not forget that at the same time as the liberated territories are being rebuilt the huge construction work going on in the interior of the country still does not cease.

For our purpose it is sufficient just to recall the construction work being done in connection with the transfer of many industrial concerns to the east



and the building of a number of new concerns to meet the needs of the war.

Large scale industrial and dwelling house construction is going on in connection with this in the Urals, Siberia and Central Asia. Such towns as Sverdlovsk and Novosibirsk have gained a new economic significance and have become big manufacturing centres whose importance will increase after the war. In addition to the increase in the size of the older industrial towns a number of new factory settlements have been built, in the interior of the country to house the workers engaged in the intensive exploitation of newly discovered deposits of essential raw materials and the workers who turn these raw materials into weapons of war.

City improvement schemes have also been continued. In Moscow for example the third underground railway line has been completed with 13.7 kilometres of line and 5 splendid new stations; 175,000 square metres of floor space in newly built living houses has been made available, to tenants, and dozens of kilometres of tramway lines, water mains and sewers have been laid; 285,000 square metres of roadway have been asphalted. In 1944 the sum of 200,000,000 rubles will be expended on the repair of dwelling houses and 80,000,000 rubles on the improvement of city transport.

At the other end of the country, in the town of Prokopievsk (Kuznetsk Basin) the available dwelling houses are being increased by tens of thousands of square metres of floor space in 1944, 16 kilometres of new roads are being built, 3 bathhouses are being opened and 42,000 trees are being planted. These examples are merely typical of hundreds of others but they serve to show the intensity of work demanded of the government, the people and the builders to carry them through in war-time.

In concluding this section I want to tell you something about the development of Soviet architecture in general and of the work that has been done by architects during the past few years. The war came when the architects and builders of the Soviet Union had reached a turning point in the development of their creative work. After searching for new forms and new ways and means for a number of years, after a number of abstractions and extremes which today seem absolutely incomprehensible, Soviet architects were rapidly approaching the point where they had assimilated the national principles and forms of the rich heritage that has been left us by the many peoples of our country. Everybody remembers the brilliant, or perhaps it would be better to say successful, in the best meaning of the word, architecture of the All-Union Agricultural Exhibition in Moscow and a number of buildings in the republican capitals in the Caucasus and the R. S. F. S. R., which were suspected of following the eternal principles of classicism or the laconic industrialism of ferro-concrete. Nevertheless the national motif was making itself more and more felt amongst architects working with new mediums.

The monstrous acts of vandalism perpetrated by the Germans in respect of the sacred monuments of national culture and art, the destruction of ancient churches and beautiful palaces, of monastic ensembles and historical Russian cities not only increased our hatred of the enemy but has greatly increased the love shown by our people for their national heritage in the arts. This increase in the interest displayed in national culture and art was bound to embrace the art of building; it increased and gave a new impulse to the critical attitude towards existing æsthetic principles and traditions in architecture.

A good example of the public interest in art and its theoretical and practical problems is the organisation, whilst the war is still in progress, of two big art institutes of national importance. The Academy of Sciences of the U. S. S. R. has set up its Institute of the History of the Arts and a number of Academicians have been elected from amongst the leading workers in this sphere. The former small department of the Academy of Architecture which dealt with the theory and history of architecture has been reorganised as a big research institute.

In the days of this great war when it would seem that all efforts and all thoughts must be absorbed by the needs of the army at the front scholars and architects have intensified their work on problems of past and present art; many lectures, talks and conferences have been held, always with large audiences and always with a lively discussion. Take for instance the conference on the History of Russian Architecture organised by the Academy of Architecture early in 1944, or the lectures on theoretical questions given by the Institute of the theory and history of architecture, etc.

A number of scholars are engaged in writing comprehensive works on the history of Russian architecture.

Amongst practising architects very great interest is displayed in questions of the history of architecture. Dissatisfaction with the present level of architecture, particularly its artistic qualities, has led to fiery criticism and theoretical discussions. Architect Burov wrote a long and exceptionally interesting book entitled "In Search of Lost Unity"; the book criticises the failings of modern architecture, analyses their causes and puts forward some exceedingly clever ideas on ways that lies between technical  
so produce an architecture



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having. All these facts give us every right to speak of creative enthusiasm on the part of Soviet architects in war-time.

This, however, is only the beginning of a new wave of enthusiasm, merely symptoms that strength is being gathered for post-war construction. Despite the undoubtedly successful designs that have been drawn up we cannot rest content with the present level of our architecture. Many architects still follow stereotyped classical forms or limit themselves to eclectic compilations on national themes which do not in any way bring us nearer to a real understanding of the expression of the national spirit in architecture. In respect of this type of architect one may repeat the words of the American "Architectural Forum" which critically approached the "Reconstruction of Coventry". "The retrospective Italo-Swedish, pseudo-renaissance arcades in the newly reconstructed sections of Coventry show that certain English architects still do not feel the new spirit in architecture; the minds of these architects need reconstructing before they are allowed to rebuild their ruined cities" (Retranslated from Russian). In a number of cases when the enemy-destroyed Russian cities are being rebuilt, especially those that contain outstanding relics of ancient and modern Russian architecture such as Novgorod, Smolensk, or Pskov, the architect must carefully and thoughtfully select the forms he is going to use for the new buildings. Is it not true to say that in these cases the new architecture must be modest in form and dimensions without any pretentious stylisation, that the general aspect of an old historical city should not have that which is artificial added to it? Should not the architecture who is rebuilding them retain that which our minds connect with say Novgorod, Kalinin or any other old Russian city? These are other views frequently come up against an effort on the part of the architect to completely rebuild the whole town in accordance

with some single preconceived "style"; it is not difficult to realise that this way will lead to negative results which will rob the town so dealt with of all its national traits.

In war-time Soviet architects are living in an atmosphere of fruitful discussion and the conflict of various views and ideas; all contrary, even mutually exclusive, ideas will undoubtedly lead our thoughts in the direction of the best possible solution of the problems which face the architect engaged on reconstruction, in the direction of the creation of the most perfect towns and villages, dwelling houses and public buildings whether regarded from the artistic or the domestic view-point, buildings that are worthy of the great people that inhabit the Soviet Union.

## CHAPTER IX

### REBUILDING THE VILLAGES

Even before the war the development of the collective farms was such that it could not keep within the bounds of the old village with its slowly developing manners and customs that seemed to remain stagnant for centuries. The collective farm system has made great changes in the village itself, in the work of the villagers, their social structure and their manner of life. The collective farmer does not resemble the old peasant who lived isolated on his own farm and in his own personal interests; the collective farmer is a member of a community which is building up a new system of farming on the basis of new methods of tilling the soil and the development of a highly productive animal husbandry. These new processes as a rule took place inside a village that was old in its planning and its general aspect and the collective farmer usually continued living in his old house. The radical changes that have been made in the economic aspects of village life, changes that have made the greater part of the heavy work in the fields and the task of caring for the cattle matters to be dealt with by the collective as a whole with the consequent lessening of the cares which the farmer had for his own little farm make structural changes in the village and a new planning of the farmer's house and his private estate a matter of necessity. With the development of institutions for the care of children great changes have taken place in the personal life of the farmers and the collective farm women have been released from home cares for productive labour on the farm. In many cases collective farmers had undertaken the

task of reorganising their villages even before the war; they rebuilt their houses and the grounds surrounding them, rebuilt the farm's subsidiary buildings, improved their roads, introduced electric lighting into the villages and improved the water supply.

The restoration of the villages destroyed by the Germans must reflect these tremendous economic and social changes which are the result of the socialist reconstruction and collectivisation of farming. New village buildings, machine and tractor stations, collective farm buildings, schools, nurseries and others were built in accordance with the existing plan of the village sometimes contrary to actual requirements and practical demands. As far as their architecture was concerned these buildings seldom differed greatly from the usual village buildings. The cultural improvements in the life of the collective farms also demands an improved technical and architectural level in the planning of the villages and in the construction of the individual buildings. In addition to this the economic life of the collective farms varies in the different regions so that the problem of village construction must find different solutions in the forested country, forest-steppe and open steppe regions of the country. The type of buildings planned for various geographical zones of the country are purely schematic and must be adapted to suit the needs of a definite district or village. The state demands of builders exceptional care and attention to the needs and habits of the Soviet peasant and his collective farm.

This applies first and foremost to the nucleus of the collective farm village—the farmer's house and his holding. Architects working on the reconstruction of the peasant homestead are carefully studying the economy and ways of life in the district in which they are working, the most typical and widespread types

of houses and, taking these data into consideration are designing new types of peasant houses. In the central and northern parts of Russia these houses are usually of the "covered farmstead", type which combine the living quarters with a Russian stove to heat them and cattleshed all under one roof. The planning of this covered farmstead is the work of centuries of experience and has the advantage of reducing the number of movements necessary to look after the cattle and the small holding with its vegetable garden or orchard. Bearing this general plan in mind the architect strives to introduce all possible rational corrections, such, for example, as an improvement in the sanitary conditions of the farmstead, the greater isolation of the part occupied by the cattle from the living quarters, the better division of the premises into rooms and the introduction of better and more effective methods of heating than the traditional Russian stove. The scale of these changes is limited by the fact that the majority of the villages are being rebuilt by the farmers themselves who build according to tradition and without any blueprints, employing methods of construction and dimensions to which they are accustomed. The significance of this independent construction was pointed out by Mikhail Kalinin in one of his articles: "We have before us," he wrote, "the task of re-establishing the building trade in the ruined villages, placing our dependence on the knowledge of competent district brigades of builders and the experience of the old men of the region." The more important corrections and changes in the structure are, therefore, only possible where the building work is being undertaken by building organisations. The architectural aspect of the farmer's house should contain every positive feature that the people have worked out in the course of centuries combined with the best examples of modern village single-storeyed houses, always, of course, taking into consideration the



specific features of life in the particular collective farm or region.

The position occupied by the farmer's house and small holding within the village is now usually determined by the standard amount of land allotted to each small holding. There was formerly no standard in the distribution of this land which naturally led to chaos in the planning of villages; now that the area of the land has been determined on (from 0.625 to 1 acre in the central regions of Russia) it is possible to plan the disposition of the farmers' holdings and the dwelling houses and subsidiary buildings. The character of the small holding has also changed; nowadays it serves only to supply the needs of the farmer's own family and will include an orchard, or apiary, or vegetable garden, rabbit hutches etc., and is divided off from the collective farm fields which surround the village.

The planning of the old pre-revolutionary Russian village was usually determined by the road along which the two rows of similar peasant houses were built; the only government regulation that existed was a demand for a certain distance between the houses to prevent the spreading of any fires; even this rule was frequently disregarded. In many cases the planning of the village as whole was without any form and quite chaotic. The isolated brick buildings of the shops, taverns, and municipal officers were standard in form and only served to strengthen the monotony of the village rather than break it; they did not provide the village with any obvious architectural centre. In pre-revolutionary Russia the church played the role of a village centre, and was prominent with its white walls, painted roof and domes amongst the village houses with their broad or flat roofs. This gave the village certain characteristic features which lent it a cosy and simple picturesqueness. The public buildings of the

new collective farm village—the offices of the collective farm, the cottage reading-room, the nursery, in some cases the village soviet, the school, the co-operative, the kindergarten, etc., should form the centre of the new village. Their architecture should be lively in style and varied both in silhouette and form. In designing the collective farm there should also be a central group of buildings comprising the cattlesheds, poultry yards, stables, barns, implement sheds, garages etc. Great variety in the planning of the village can be effected by varying the style of these two centres, by breaking up the monotony of the buildings and of the general impression of the village as a whole

Special attention has to be paid to the reconstruction of villages situated on the state highways or on arterial motor roads. These transport arteries were the scene of military operations, military stores were transported along these roads, motorised units, tanks and infantry used them so that they were subjected to particularly intense artillery and serial bombardments and the villages situated on them were mostly levelled with the ground. Their only system of planning, dating back to days long before the development of motor roads, usually consisted of two long rows of houses, similar to those mentioned above, situated on the two sides of the road. In connection with the development of road transport such planning has a number of inconveniences, the highway became a village street and traffic was forced to slow down. In rebuilding such villages a new system of planning has now been adopted. The village is built to one side of the highway and is connected to it through a branch road. In addition to other inconveniences this principle allows of greater variety in the general planning of the village as a whole and a better utilisation of natural features (forests, rivers, lakes etc.) and a better disposition of the

buildings. Especially the public buildings (school, hospital, shops, etc.). This system greatly simplifies the further development of the highway which may be widened without disturbing the village community.

When the village is removed from the high road it is possible to plan it with winding roads so as to obtain the greatest possible effect from the surrounding landscape and relief, to make the central building stand out prominently, etc. An example of this type of village planning is the design drawn up in detail for the Teryayeva collective Farm in Volokolamsk district, Moscow Region, produced by a group of architects working under the direction of Academician Lev Rudnev. The old village stretched out along the highway between Volokolamsk and Klin in two long lines of monotonously similar buildings; the village was a kilometre and a half in length and the buildings were very close together a fact which made it dangerous in the event of fire and led to the disproportionate distribution of the farmers' small holdings; the farmers' dwelling houses came right to the edge of the highway without any green strip between them and the road. The new plan makes use of the extremely picturesque landscape with its gentle undulations, small lakes lying to the west of the village and the winding stream known as Bolshaya Sestra (Big Sister) which runs through the new village. A new village centre is to be built away from the highway and the general growth of the village is planned to take place in a northerly direction; the plan provides for a village that will be from two to three times the size of the old.

In many cases the Germans destroyed all the villages in a district and the architects planning the reconstruction have a much greater task to fulfil—they have not only to plan parts of village or whole villages but also have to allow for a new

distribution of villages over a large territory with allowances for communications between communities. In such cases a more or less considerable, regrouping of the village is both possible and necessary—for example, the territory of a collective farm that has been completely devastated by the Germans adjoins bigger farms that have suffered less so that those who have been burnt out are transferred to the other farms. This brings about a complete change in the economic geography of the district bringing with it the problem of constructing a new network of roads joining the villages with the district centre. In this replanning of whole districts the most important thing is the selection and the transfer of settlements from those places which are less healthy, where there is a lack of good drinking water etc. Apart from these considerations of a purely economic or sanitary nature the æsthetic qualities of various localities have to be taken into consideration when planning the new villages. High land with picturesque scenery is usually chosen which is near forests, rivers or lakes, new roads are also varied in their character and their form, and the most important settlements are connected by tree-lined avenues.

The rebirth of the collective farm village in the regions that have been liberated from the Germans is going ahead as rapidly as the restoration of the towns and their dwelling houses. In 10 months of 1943, for example, 39,211 collective farmers' houses to give shelter to 163,932 people were built or rebuilt in Smolensk Region. During the two and a half months between 15-8-43 and 1-11-43, 25,211 houses were made available, including 12,664 that were newly built from freshly hewn logs.

The Government is doing everything possible to help the peasants and to encourage their initiative in rebuilding their native villages on : 1st January, 1944, the agricultural bank of the U. S. S. R, paid out loans

to the sum of 36,265,000 roubles for the building of private houses. The people are responding by hard, selfless work. On the banks of the Don in Voronezh Region, for example, there stood the rich collective farms in the villages of Derzovka, Nizhny Karbut, old and new Kalitva. There were 348 cottages in Nizhny Karabut of which the Germans left only 12; the same is approximately true of the other villages. The peasants organised the rebuilding of the villages on old Russian community lines: gangs of carpenters, stove-builders and blacksmiths worked in all these villages; for their logs they dismantled the German bunkers, they got sheet iron for roofing and glass for windows from the same source, nails they made from wire; the peasants made use of all kinds of local materials, twigs, straw and reeds for thatch and from local chalk and clay deposits they made bricks and slaked lime. The result of this community work was that by October 1943, 2,219 houses were rebuilt in these Donside villages.

## CHAPTER X

# EQUIPMENT AND MATERIAL

The tremendous scale and the urgency of the work of restoration have raised a number of problems which the government, the builders and engineers engaged in research have to be solved immediately. The technique, economics and organisation of reconstruction differ in many ways from normal building work and offer many unexpected practical and theoretical problems. In normal architectural practice, for example, the question of the rationalisation of the work of clearing mountains of rubble and ruins from the building sites was never raised although this is the first task to be done when reconstruction begins. Clearing away the ruins of one street, Kreshchatik in Kiev, meant clearing an area of 500,000 square metres. The restoration of the damaged buildings is also connected with the study of the strength and changes that have taken place in the technical properties of metal concrete, bricks and other materials that have been subjected to the action of fire or that have been within the radius of activity of artillery and aircraft; the possibility of utilising surviving parts of buildings often depends on the solution of this problem; in rebuilding Stalingrad this problem was solved by laboratory experiments on the spot. The available material for reconstruction purposes also presented new problems; even where the walls of houses were left timber and glass were required in tremendous quantities. For the reconstruction work in Stalingrad Region 6,000,000 cubic metres of wood were required. Where it was absolutely essential building materials were transported with the rapidity of loads of war goods. For the rebuilding of power stations and distribution grids in the liberated regions large quantities of spare parts and other materials

were transported from the interior of the country by air. In general, however, the tremendous work of restoration that is going on under wartime conditions, must be done with the greatest of economy, a fact which applies mostly to building materials. Transport cannot be burdened with loads of timber, stone, bricks, lime and cement at a time when the army at the front needs ammunition and other warlike stores. The problem is even more acute in the liberated regions where the enemy did everything possible to put the railways out of commission and to destroy the highways and the big transport centres. The first imperative law of wartime reconstruction, therefore, is to build only with local materials, to do everything possible to seek and make what is necessary locally. This is a problem that is being worked on by central research institutions and on the basis of the experience of those centres where reconstruction work has already been begun.

The Kiev builders are carefully dismantling the ruins, salvaging all possible building materials such as iron, bricks, wire, water-pipes and beams ; the wire is used to make nails, the beams and logs are sawn up into boards. The people of Kiev saved a glass work from being fired by the Germans and are now getting window glass from it. A factory manufacturing roofing felt was fired by the Germans but the local people have got it working again and have obtained thousands of rolls of felt for the roofs of Kiev. 300,000 cubic metres of rubble were cleared away from Kreshchatik all of which had to be sorted out and the bricks salvaged ; this required the labour of 8,000 to 10,000 people daily for between three and four months.

In the city of Kalinin the state authorities put a guard on the damaged buildings to prevent their being dismantled by various building organisations in search of stone, bricks and other building materials ;

it was seen that at first much valuable building material was used in ways far from rational. The restoration began with the buildings that were the least damaged and which could be repaired and used in a comparatively short time. The cost of restoring even these buildings amounted to about 40% of their original cost. This figure is compiled from the cost of repairing doors and windows (7%), ceilings (21%) and for plastering (14%). The question then arose of a local supply of timber, glass and other material. Almost all the building trusts fitted up their own sawmills, timber for which was provided by the voluntary labour of the towns people who hewed the timber during the winter and floated it down the river in spring. The production of glass was more difficult; the glassworks of the region were adapted to produce window glass and in some cases the furnaces and kilns of potteries were adapted for a similar purpose. New equipment was set up in one factory and the manufacture of plate glass was begun other factories were converted from the manufacture of various glass goods to the production of window glass. These measures to some extent overcame the shortage of window glass. When the reconstruction of the second and third category buildings began and a considerable amount of masonry and brickwork had to be handled it became necessary to find transport for large quantities of heavy materials such as sand, clay, rubble, etc. The Kalinin builders decided to make every possible use of the rubble on the building sites. They began using the ashes from the conflagrations instead of sand in mortar; I cannot help mentioning that in doing this the builders were unwittingly making use of an old Russian recipe for mortar which included fine charcoal and ashes. Another measure adopted by the Kalinin builders was the use of finely crushed brick rubble and lime instead of cement for work which had no strain to bear; this is also an old Russian recipe, very economical and



rational—the material used to be known as pink concrete. This method of converting brick rubble into a strong binding mortar is now being widely used by builders on all restoration jobs. In search of new materials engineers learned to make breeze blocks out of cinders from railway yards, from iron and steel mills and from ordinary boilers.

Bold technical initiative and resourcefulness is to be found everywhere where there is restoration work going on. In the field of power engineering, for example, the engineers rescued the remains of wrecked turbines, repaired them and made new parts for them in local factories ; they did complicated technical jobs on the spot, jobs which were formerly considered possible only in a large factory such as the welding of drums of boilers, the repair of the main sections of huge boilers, the rebuilding of transformers, etc. Thanks to the bold initiative of power engineers the towns and enterprises in the liberated regions were soon provided with electric power.

All wood and brick constructions are examined from the same angle of economy and new methods of rebuilding them are introduced. This work was particularly necessary where there were large numbers of single-storey houses to be rebuilt, not only by central authorities but also by individuals. An analysis of the single-storey house and its most important parts—the walls and foundations—led to a standard construction being evolved using more rational materials and methods. Walls built from round logs like the houses in Central Russia not only use a tremendous amount of timber (8, 5 to 10 times more than a frame house) but involve a terrific amount of labour which cannot be mechanised. This type of building can only be permitted when the work is unorganised and there is plenty of cheap timber available. A house made of sawn

timber is more economical but this can only be used as temporary measure and then only in places where the timber can be floated down rivers or where the war has left large quantities of felled timber in the forests. Houses with filled walls built of second grade timber such as are usually employed for temporary hutments cannot be regarded as permanent buildings in view of a number of technical drawbacks and difficulties in the way of exploitation; furthermore a large quantity of material is required both for the carcase and the filling. Prefabricated houses are much more effective as temporary dwellings. Engineers V. E. Binner and P. S. Belits-Geiman have devised an excellent type of standard pre-fabricated house. It is of the barrack hut type, has a cubic capacity of 300 cubic metres, will house 135 men and has a total weight of from 12 to 12.5 tons. The carefully planned construction gives the building its lightness and the assembly of the building, tested by experiment, takes from 4 to 6 hours; it can be dismantled in half the time. The frame house is much more suitable for permanent buildings and is more economical than a building made from sawn timber and considerably more economical than one from round logs. This demands the immediate development of factories for the production of effective insulating material from industrial waste, mineral wood, tordolite and pulp boards and the mechanisation of the production of certain wooden parts. Nevertheless timber still remains an important item in the work of reconstruction. In rebuilding, therefore, one of the first tasks is the restoration of old sawmills or the organisation of new ones. In Stalingrad four sawmills were started up during the first months of the restoration. Government bodies and Communist Party organisations have paid considerable attention to the preparation of sawn timber. During the winter of 1943-44 the timber industry hewed a

large number of trees; the transport of this mass of timber is an exceedingly difficult matter so that the use of the rivers to float timber has become more important than ever before as it relieves the railways and their rolling stock of the necessity of transporting timber. During the summer of 1944 the rivers will be used to transport a quantity of timber which would require daily 10,000 wagons on the railways. 750 wagon loads of wood a day will be floated down the Kerchevsk reaches of the river Kama during 1944.

The same reasons of economy and rationalisation determine the use of blocks in the building of small houses; these can be made of local raw materials and consist of unbaked and slightly baked materials. The success of such material is due to the fact that the raw material is to be found everywhere, the expenditure of fuel is very slight and the cost of organising the production is low. Walls made from such blocks are more economical than those made from ordinary bricks both in transport and in the labour involved in building. Such blocks can be used for inside and outside walls, for ceilings and for ornamental details.

The simplest form is the gravel breeze block; the addition of 0.5% to 2% resin or bitumen to the gravel makes a waterproof mass; technical experts recommend the addition of some material containing albumin such as waste material from leather goods factories, the food industry or a decoction of hay or straw.

Gypsum offers the greatest prospects of all materials, not only for wartime construction but also for post-war building. There are large deposits of gypsum almost everywhere, near Moscow, in the Ukraine (Artemovsk, Kiev, Kharkov), Gorky, Kazan, the Volga Basin (Kuibyshev), Bashkiria (Ufa), the Kama Basin (Molotov) Central Asia and the Far

**East.** Gypsum is cheaper than bricks or cement; its durability, obtained by a special process, makes it suitable for walls, inside and out, ceilings, staircases, window-sills, etc. If gypsum is properly worked its surface does not require any further treatment, it can be produced under factory conditions in variety of forms.

The architectural and artistic qualities of gypsum make it a valuable building material from which gay and beautiful buildings may be constructed. Gypsum may be given any form, any colour and any design in relief; it enables the builder to return to ornamental designs with factory methods of output. The manufacture of durable gypsum, therefore, is attracting considerable attention; special factories for its production are being built in Stalino, Makeyevka, Kramatorsk Mariupol, Nikitobka, Artemovsk, and a number of other towns.

The manufacture of building materials in the various localities forms part of the measures in the joint decree issued by the Council of People's Commissars and the Central Committee of the Communist Party of the Soviet Union which have been mentioned several times before. By the 1st January, 1944, the following 25 factories had already been built to provide local building materials:—

| Type of factory                     | Number | Output capacity       |
|-------------------------------------|--------|-----------------------|
| <b>Manufacturing clay slabs and</b> |        |                       |
| blocks ...                          | 5      | 12,500 tons.          |
| reed slabs ...                      | 8      | 155,000 "             |
| breeze blocks                       | 2      | 705,000 "             |
| lime ...                            | 3      | 9,000 "               |
| plaster of paris                    | 2      | 2,000 "               |
| cement ...                          | 1      | 3,000 "               |
| timber parts of                     |        |                       |
| houses ...                          | 1      | 20,000 lineal metres. |

| Type of factory                            | Number | Output capacity                                       |
|--|--------|---|
| Manufacturing roofing and facing tiles ... | 1      | 400,000 tiles and 200,000 square metres facing slabs. |
| Quarries producing roofing shale ...       | 1      | 25,000 square metres.                                 |
| Quarries producing limestone               | 1      | 300,000 tons of blocks per annum.                     |

All these new types of material, however, do not obviate the necessity and possibility of continuing to build in brick. Builders are inventing new types of constructions which make bricks a very economical building material.

Thin vaulted shell roofs, for example, which are only a quarter of a brick thick and can be used to roof spans up to 20 metres are much cheaper than reinforced concrete structure.

Some architects (Academicians G. Holtz and N. Kolli) recommend the use of vaulted roof structure in timberless regions such as are built in Central Asia without the use of moulds or timber in their construction.

Technicians are working on the production of types of brick and brick constructions which will make bricks a rational medium to use in the manufacture of small houses. One of the methods used is to interpose massive bricks with other and more effective materials. A second way is to build hollow brick walls either with interstices between ordinary bricks, bricks with holes through them, large hollow bricks or ceramic blocks. A system of hollow

brick wall construction invented by engineer Grigori Kuznetsov gives a wall of lighter weight, uses less bricks and mortar and dries more quickly than ordinary walls. If these systems are used bricks may easily compete with gravel or slag breeze blocks and gypsum blocks. A wall made from ceramic blocks weighs half as much again as a wall of gypsum blocks but the labour involved is 15% less. This requires a more intensive production of light bricks and ceramic blocks, an industry that has begun to develop in the Western Ukraine, in the Moscow Region and other places. The study of American methods of producing Hollow bricks and building with them is of great help to us.

Economy in building materials and the greatest possible use made of local resources are an obligatory condition in drawing up architectural designs for the restoration both of the collective farms and the towns. The town of Istra, for example, is situated in a richly wooded district but can nevertheless not depend to a very great extent on wood as a building material as the forests are to a great extent required for the retention of water. Those who are rebuilding the town, therefore, are making use of bricks from local clay, peat slabs compressed from local peat, etc. Timber must be expended economically for the frames of small houses built of standard wooden parts with slabs of insulation, prefabricated walls and light roofs.

The peculiar feature of reconstruction work is its combination of all the methods of building from the most primitive local methods in the villages to the employment of modern high-speed methods and prefabrication. This greatly accelerates the speed of reconstruction and makes fuller use of all available resources. High-speed building is being extended and perfected in the U. S. S. R. and our

builders are studying the experience in prefabricated building gained in the U. S. A. and Great Britain.

Rebuilding work has also made necessary certain changes in the number of workers and machines required for building jobs.

Experience gained in building in Kalinin has shown that for the rebuilding of houses that have retained most of their walls carpenters, joiners and roofers are needed to restore the wooden parts of the house and the roof. Workers therefore had to be trained in these trades. In the same way as building materials have to be found near the building site in war-time so the staffs of building workers for the jobs in hand have to be trained locally, right on the building job and without the organisation of any courses or schools but simply by an experienced worker training a group of pupils as they work. Instructor Kotov at Kalinin, for example, trained 63 pupils on the job and a carpenter named Velikanov taught his trade to 12 girls.

The nature of the mechanisation of the building work was also quite different from what we were accustomed to in pre-war days; most building jobs used to be furnished with a big crane capable of lifting loads to any height. Experience gained on reconstruction jobs, however, has shown that these cranes are not profitable and that a light winch, easily transportable anywhere on the job, is much more suitable.

In rebuilding industrial concerns and buildings near a railway the "repair and restoration trains" organised by the People's Commissariat of Railways are extremely useful; they are little travelling factories carrying a portable power installation, certain machine and building materials and staffed with a complete gang of experienced building workers. At Stalingrad the Germans burnt a sawmill belonging to the railway; repair train number 16 arrived at the

scene of the mill on 2nd May, 1943; within a few hours the building site had been cleared and the power installation erected; within 24 hours a temporary barrack building with water and electricity was ready. Eighty-five days later the saw-mill began work.

Practical experience gained has also led to certain corrections in the order in which the buildings of a town are rebuilt. Buildings of the second and third categories, that is buildings which have been damaged some 75% to 80%, are usually situated close together in whole blocks and sections of the town that have been subjected to the greatest amount of gunfire; it is more economical to build these by streets or blocks as this simplifies the transport of material and economises in expenditures connected with communications and electric power. With regard to the work of the architect, this method of rebuilding whole blocks enables him to preserve the unity of the decoration and composition of that section of the city which is especially valuable in towns like Kiev with its historical groups of buildings, or in Kalinin, with its blocks of buildings erected by the famous Russian architect Matvey Kazakov.

Town building organisations have learned to make the fullest use of city transport facilities and the transport facilities of the surrounding districts. In the town of Stalinsk, in Kemerov region a decision was taken not to allow any truck to run empty and to make use of all returning vehicles; thanks to this measure adopted in 1943 the transport of 5,000 cubic metres of gravel and a large quantity of other building material was effected.

By making the best use of new experience gained added to scientific research, initiative and organisation, reconstruction work that would have been regarded as impossible under normal conditions is being successfully carried out.



## CHAPTER XI

### HELP FROM THE REAR AREAS

The work of reconstruction could never have been carried on to such an extent had it had to depend on available technical means alone. That which ensured its success was the fact that it became a task in which the whole people participated in the same way as they did in the war against fascism which gave rise to the people's guard and the powerful partisan movement and became the Great Patriotic War". The restoration of the liberated regions has become a sort of second front to which the attention of all forces within the Soviet Union are attracted. The country helped those towns and villages which had been liberated doing everything possible to bring them back to life and enable them to struggle against the enemy: the country gave them food and machinery, building material and workers.

After the great Stalingrad battle the heroic city did not drop back into the shadow, it did not become a city of the rear areas. A commission of experts set up by the Academy of Architecture of the U. S. S. R. the People's Commissariat of Municipal Building and other building organisations arrived in February 1943 and determined the nature and amount of the preliminary work of restoration and the further reconstruction which would later be undertaken. One of the first towns to render fraternal help in rebuilding Stalingrad was the textile centre of Ivanovo, the "Russian Manchester". The town collected or manufactured large quantities of tools and building materials, the workers in the timber industry prepared 10,000 cubic metres of building wood above plan, the engineering workers made

sufficient equipment for 170 blacksmith's forges and made a large quantity of nails, etc. Steamers and trains brought Archangel and Siberian wood to Stalingrad, brought prefabricated houses from Molotov and Archangel, brought glass from Penza; the lumbermen of the collective farms in Gainin District felled 20,000 cubic metres of wood in addition to their normal programme to send to Stalingrad. Building materials came from Gorky, its factories, the Molotov Automobile Works and the "Red Sormovo" Locomotive Works, also sent Stalingrad automobiles and iron for the roofs. Distant Azerbaijan sent thousands of head of cattle and food products. Even Leningrad sent Stalingrad several trains loaded with tools and equipment for the factories. From Tashkent, Kokand, Samarkand came cement, iron, nails. Organisations and individuals made donations to the Stalingrad Reconstruction Fund—the Young Communist League of the U. S. S. R. collected 16,000,000 rubles for the restoration of Stalingrad's cultural institutions; tens of millions of rubles were contributed by army units; Lunin, the celebrated engine driver of the Tomsk railway brought 1,000 tons of coal and himself took it to Stalingrad.

In the same way other liberated towns were given the support of various regions and towns of the country. The Government of the U. S. S. R. allotted 30,000 tons of metal, tubing and girders. 450,000 cubic metres of wood, 15,000 tons of cement and 300,000 square metres of window glass for the restoration of Ukrainian Industries. The Bashkir people adopted reborn Voroshilovgrad and region. In September 1943 they sent many machines and tools, 80 wagons of sawn timber, about 2,000 items for buildings, 22 wagons of plaster and lime, 2.5 tons of paint and oil and a number of machines for building. Uzbekistan is helping in the rebuilding

of Kharkov ; Ivanovo Kiubyshev and Yaroslavl are helping rebuilding Smolensk ; Foronezh, a city which received 47,000,000 rubles from government sources for restoration in 1943 alone also gets building materials from Penza, Lipetsk, Tomsk and Novosibirsk ; the rich country of Siberia sends the liberated city the most varied items from timber and machines, to pianos and Siberian tea, equipment for restaurants, etc. The Town of Molotov has adopted Rostov to help in its restoration.

The most valuable item and that of which there was the greatest shortage for restoration work was skilled labour. The state came to the help of the building organisations by the rapid training of building workers in vocational schools. Out of the 200,000 young workers graduated in 1944, 55,000 were sent to the liberated regions ; amongst them are bricklayers, carpenters, plasterers and joiners. This of course was but a drop in the ocean. The deficiency has been made up ever since reconstruction began in 1943 by young workers coming to the liberated regions from all parts of the Soviet Union.

A gang of the best mechanics from the Rublev pumping Station in Moscow was sent to Smolensk for the purpose of repairing the water-mains. The Young Communist League (Komsomol) was of great help to Stalingrad ; the Komsomol sent young people to the city from Kirov and Alma-Ata, from Omsk and Archangel, from Gorky and Astrakhan. Twenty of the country's best building workers, Stakhanovite instructors belonging to the People's Commissariat of Building, worked for three months training young workers and handing over to them their experience of the best way to lay bricks, to build with wood, to organise their brigades of workers, etc. By the beginning of 1944 the number of young building workers in Stalingrad amounted to 15,000.

They were inspired by the romanticism of creative labour and by an enthusiasm such as existed during the period of the First Five-Year Plan when the giants of Stalingrad's Industries were built. The growing competitions led to still better performances and work that was more productive than ever before; in May 1943 Svetlans Libo, a school girl in the graduation class, laid 2,380 bricks in a single shift, shortly after this another girl Nadezhda Tiuleneva, of the Kirov Komsomol laid 3,600 bricks in a shift; then came the record of an ex-student of Alma-Ata pedagogical institute, Ada Weinstein, who laid 3,952 bricks and Lida Babkina of Belgorod who laid 7,000 bricks. One of the most outstanding feats of bricklaying is that of a 22 years Moldavian, Grigory Khristov, who has experienced the hardships of life as an agricultural labourer under a Rumanian boyar; he does eleven times his quota and lays 14,037 bricks in one shift. Many of these enthusiasts working at Stalingrad have been awarded certificates of merit by the Central Committee of the Young Communist League.

Amongst the ever-growing population of Stalingrad, brigades of voluntary building workers have been formed, mainly from those returning from evacuation.

The whole Soviet Union now knows the story of Alexandra Maximovna Cherkasova. She is an ordinary Soviet woman, a soldier's wife, a mother of two children who works in a kinder-garten. During the Battle of Stalingrad she became a medical orderly and saved the lives of many wounded soldiers. On the 1st February, 1943, she was present at a meeting in Stalingrad on the occasion of the liberation of the city where the Stalin-graders took an oath to be as staunch on the field of labour as they had been on the field of battle; then began the Sunday volunteer work to clean up the city and

this simple woman got the idea of getting together a brigade of workers to begin re-building. She gathered 18 woman workers from the kindergartens. On the 13th June this brigade began work on the restoration of a building that was defended by a handful of men from the 62nd army who withstood dozens of attacks by infantry, artillery and aircraft. Its defenders had written on the walls of the building; "To our Motherland! Here Rodimtsev's guards stood and died. . . . This building was defended by guards sergeant Yakov Fedotovitch Pavlov". "Pavlov House" was the first building that Cherkasova's brigade repaired. They worked two or three hours every evening after they had finished work in the kindergartens and devoted all their Sundays to the restoration of the city. Amongst these modest heroes of the Stalingrad epic was 70-year old Mazurina, mother of three soldiers, another elderly woman named Agrippina Morchukova, a teacher from the kindergarten, Maria Vilyachkina, a cook Catherine Martynova and other women who had all undertaken to learn building trades. They learnt them very quickly.

Charkasova then issued an appeal to the people of the city, to factory and office workers, housewives, in fact to all able-bodied citizens to devote their spare time to the rebuilding of the city. Her appeal was answered by thousands of volunteers. In Dzerzhinsk Region alone there were 108 such brigades who rebuilt 10 houses, 2 bath-houses, a hostel for workers, 2 restaurants, 2 shops, a school and a number of other buildings; in Kirov District at this time there were 234 brigades. The collective farms of the region also answered the appeal and sent workers to the city.

The initiative of the people was directed into the right channels by the trade union and Communist

party organisations in Stalingrad. They organised the technical training of the volunteers in schools and at special courses so that a school teacher or a book-keeper became a skilled building worker in the evenings.

This was very understandable under war conditions where the scientist or the artist, the worker and the peasant took his place in the ranks of the soldiers. Antip Khrenov a school-teacher from Rzhev was a partisan during the first part of the war and then, when his native town was liberated he took charge of a warehouse handling nails, furniture, household utensils and other items necessary for the work of reconstruction. This was just as much a military duty only it was now on the construction front; it is also natural that this peaceful front of creative labour should produce heroes and legends.

Here are a few of the Stalingrad heroes: Maria Voriskina learned the trade of plasterer and succeeded in doing 15 quotas in one shift: Tanya Troksha a Tatar and a shop assistant before the war is now forewoman in a brigade of carpenters; Olga Sintsova a book-keeper before the war is now the leader of the best Stalingrad brigade of concrete workers. From June 1943 to February 1944 over 35,000 people took part in the work of the Cherkasova brigades; they put in 655,000 working days. In the course of six months they helped restore or build over 11,000 houses, 119 restaurants, 116 shops, 13 hospitals, 5 cinemas and all the schools.

The so-called Cherkasova movement in Stalingrad was only one way in which the tremendous enthusiasm of the people of the liberated towns made itself manifest.

During the seven months that followed the liberation of badly battered Kharkov brigades of workers consisting of old people, housewives and

juveniles did a tremendous amount of work. About 15,000 people in Kharkov turned out to repair the railways; a 75-year old woman named Grebenichenko organised a brigade of workers to clear the railway tracks; everyday 500-600 people worked on rebuilding the bridges in the October District. Like Cherkasova in Stalingrad, a 50-year old woman of Kharkov, a housewife named Budoxia Molchanova became famous; she organised a brigade of housewives who mastered building trades; very soon many brigades of women were working as plasterers, bricklayers, stove-builders, etc. They played an important part in rebuilding houses, factories, schools and nurseries. The restoration of the children's institutions and the school attracted the greatest attention from the volunteer builders who in Lenin District alone rebuilt 10 schools, 8 kindergartens and 10 nurseries. The youth of the city played a very important part in the rebuilding of Kharkov; 18,000 young people organised 108 repair brigades for volunteer building work. They repaired 15 factory buildings, 177 schools, 15 vocational schools and 600,000 square metres of floor space in living houses. Thanks to the help of the people the Kharkov City Soviet was able to get the trams and trolley buses running in a comparatively short time and to provide the city with water, electricity and gas.

By the end of April 1944 there were 932 brigades of 19,500 volunteers working on the restoration of Kursk. The townspeople were not satisfied with this and undertook to raise the army of volunteers to 60,000; they decided that everybody living in Kursk must do at least 10 hours work a month on the building jobs. The fulfilment of this plan resulted in restoration work being done that would otherwise have required the labour of 3,000 builders for a whole year.

Similar enthusiasm is seen in Kiev and the surrounding villages where the people are determined to heal the wounds of the "Mother of Russian cities."

In heroic Leningrad where the barbaric German bombardments did such great damage to the dwelling houses the work of restoration is well under way thanks mainly to the efforts to the Leningraders themselves. In the Vyborg District of Leningrad 415 townspeople began voluntary building work at the beginning of April 1944 ; by the end of the month this number had increased to 4,347 people. In the course of that month they had completely repaired dwelling houses with a floor space of 1,859 square metres and done lighter repairs to 42,000 square metres. This volunteer movement in Leningrad is headed by the deputies to the local Soviets and people prominent either in the houses or the factories. On the initiative of a woman deputy, Zhiglinskaya, the inhabitants of a big apartment house repaired 41 apartments and 541 square metres of other living space for soldiers' families in the course of two months. The workers in various factories, offices, schools, hospitals, kindergartens, etc., consider it their duty to rebuild or repair these premises as quickly as possible. Doctors and nurses are repairing the hospitals, teachers and pupils are repairing the schools ; the workers of Vyborg Public Health Department are working overtime to put all their premises in good shape again ; they have repaired apartments with a total floor space of 5,500 square metres and have cleared and laid out 10,000 square metres of courtyards, playgrounds and subsidiary buildings. The staff of one of the factories put in 10,000 man-hours repairing their factory during the first month of 1944 building season.

The tremendous experience in directing the initiative of the masses which has been accumulated by the Leningrad organisations is now being used to advant-



age in rebuilding the city. The districts are split up into separate wards each with a detailed plan for the restoration work to be done which takes into consideration the amount of labour and material available, the tools required and the technical advice and help that will be needed. Every volunteer builder is issued with a booklet "participant in the rebuilding of Leningrad" in which all the patriotic work which he does is recorded; volunteers or brigades who earn special distinction are recorded on a roll of honour, have the right to receive increased rations, passes to rest homes, etc.

The attention paid to restoration work in Kiev is equally great; a special newspaper "Restoration of Kreshchatic" is published which may be compared with any paper published at the front. It deals with the task to be fulfilled and the successes and achievements of individuals and brigades of workers.

Street and house committees play an important part in the organisation of the work for they know the needs and possibilities of their own section of the city and organise the people for work on Sundays and for participation in the building work. In Rzhev 16 Sundays were devoted to the collection of building materials and 25 to the collection of scrap iron from among the ruins. This way of helping the fulfilment of the urgent work of the municipal authorities first began amongst the Soviet people during the Civil War; it has now become widespread in Voronezh, Kharkov and other liberated cities.

The same enthusiasm is shown in rebuilding important industrial concerns, power stations, power grids, etc. In the spring of 1944 the flood prevented the building of the last 8 kilometres of line bringing electric power to Voroshilovgrad; the wire could not be dragged through the mud either by tractors or horses; the people of Voroshilovgrad, together with the electricians actually carried the wire and other

store on their own shoulders and thus brought electric current to their city. Volunteer builders also threw a kilometre long wooden bridge across the Dnieper near Kiev in one month.

The experience gained by the people in restoring the liberated regions is passed back to the towns in the interior of the country where the people are also helping with building work. In April and May 1944, in the towns of Moscow Region the people worked 520,000 man-days and cleared away tens of thousands of tons of rubbish, cleared 236 kilometres of gutters, mended 34,000 metres of fencing, painted and repaired the facades of 3,000 houses, etc.

Thus with the joint efforts of the state and the people, science and initiative towns, villages and culture that the Germans left for dead are being revived. With regard to the restoration of Soviet culture we shall have something to say in another chapter.

## CHAPTER XII

### THE RESTORATION OF SOVIET CULTURE IN THE LIBERATED REGIONS

The restoration of normal life in a town or village is not confined to rebuilding the dwelling houses and municipal services. The cultural services and amusements to which the people of the Soviet Union have been accustomed must also be restored. The enemy dealt this side of our life a particularly heavy blow.

When Hitler was preparing his armoured hordes for the assault on the U.S.S.R. he said : "We are barbarians", and we want to be barbarians, a slogan that justified and glorified the German soldier in his hatred and destruction of culture. In addition to this the Germans and their allies worked out a plan for the systematic destruction or plunder of cultural treasures in the lands they occupied. The lands of the Soviet people had a special place in this plan for they formed the basis of the age-old madness of the German "Drang nach Osten." This system of plunder and destruction carefully planned with typical German thoroughness and stupidity has become known to the whole world through the secret documents and instructions on the behaviour of German soldiers "In the East" discovered and published by the Soviet Government. On the one hand there is the thesis of Field Marshal Reichenau to the effect that "no artistic treasures in the east are of any significance" and the destruction of these treasures ; on the other hand we have the "activity" of the "special battalions" of Rosenberg for the "scientific organisation" of the plundered galleries and museums, records and libraries and for their transport to "das Vaterland." In the Rumanian general staff's instructions "on the functions of the organisation

Z. I, specialising in the spoils of war and trophies" issued on 16th June, 1942, we read of the "collection in strict secrecy," that is the looting of art treasures, instructions on how to cut a canvas by a famous master from its frame and, roll it up in a tube for dispatch to the west by hospital train.

The results of this "work" performed by the occupation armies have not yet been fully discovered but we know that the sum involved in the occupied Soviet territories is one that defines human imagination.

When the enemy fled to the west he left behind him the ruins of countless priceless monuments of the national cultures and art of Russia, Belorussia and the Ukraine. If you travel along the whole eastern front from north to south and inspect only the chief items in this sad list you will see the ruins of the palaces and the lacerated parks of the Leningrad suburbs, Novgorod the Great, a museum city turned into a heap of ruins,—here Nereditsa, Volotovo, Kovalevo and many other gems of Russian 12th-14th Century architecture have perished; the ruins of New Jerusalem Monastery near Moscow; battered Smolensk; the ruins of the 11th and 12th century buildings in Chernigov; the Cathedral of the Kiev Pechersk Monastery built in the 11th Century and many, many more. The same fate overtook the museums and libraries, a monstrous auto-da-fe organised by the Germans which devoured millions of books, hundreds of thousands of valuable collections. In the little town of Rzhev 60,000 books perished, in Smolensk five libraries with 640,000 books were blown up and burnt, 320,000 books were removed from the libraries of the Academy of Sciences in Kiev, the library of 1,300,000 books in Kiev University was burnt. In the town of Makeyevka, in Stalino Region, 35,000 books from the central library were burnt on a bonfire by order of the town

commandant Fugler, a similar number of books was burnt in the library at Konstantinovka, 70,000 books perished at Orel, 3,000,000 books were destroyed in one of the libraries of Rostov-on-Don, and so on.

The list of museums that were destroyed in our towns is a fearful one ; amongst them were some of the bigger museums of history in Kiev, Chernigov, Novgorod and Smolensk, real treasure houses of national art and culture. The enemy strove to uproot the national self-consciousness of our people and to prevent any possible restoration of our culture—with savage thoroughness they destroyed our kindergartens and nurseries, our schools and our colleges. In Rostov-on-Don, for example, all the theatres, libraries, the pedagogical institute, the automobile technicum and dozens of schools were destroyed ; in Rostov Region the enemy completely destroyed 1,379 schools, over 400 cottage reading-rooms, 120 libraries and 67 kindergartens.

All this had to be revived immediately, it could not be put off one single day.

Amongst the cultural and communal amenities that are being restored primary importance is given to the children's institutions, the kindergartens, nurseries and schools. Love for the children and solicitude for their well being and upbringing is one of the characteristic features of the Soviet system and the Soviet people ; this love and solicitude have now grown beyond anything before known and have been given a new impulse. One of the most tragic results of the German invasion is the great suffering of the children, the thousands of orphans whose parents perished at the hands of the butchers or who were killed fighting in defence of their country. For the second time in the history of the Soviet Union the state has to deal with the terribly important problem of homeless children which first arose as a result of the First World War and the Civil War which to-

gether covered the years between 1914 and 1922. At a time when the full attention of all people today is devoted to the conduct of the war and the restoration of the liberated regions the women working in the factories, collective and state farms must be relieved as much as possible of household cares ; the first and most important help that can be given to them is to assist them in bringing up healthy and happy children.

Children's institutions are the subject of a special programme in article ten of the instructions issued by the Council of People's Commissars of the U.S.S.R. and the Central Committee of the Communist Party of the Soviet Union on "urgent tasks for the restoration of the economy of the regions liberated from German occupation." The children of soldiers and partisans and orphans whose parents have been killed are the subject of special government solicitude. The Suvorov Cadet Schools for 4,500 students, special vocational schools for 9,200 children, children's homes for 18,050 children and special reception points where 2,000 children are maintained until adopted or sent to a home have been organised under this instruction.

When school and kindergarten teachers return to the devastated region their first job is the registration of the surviving children. Seven school teachers who returned to Stalingrad gathered together all the children from the dugouts and trenches—there were 223 of them. Amongst the items sent by towns in the rear to those they have adopted are sets of equipment for children's nurseries, kindergartens, schools, etc.

The result of this solicitude of the whole people for the children and their upbringing is that the restoration of the children's institutions keeps pace with the rebuilding of the dwelling houses, municipal utilities and the factories.

Out of the 1,520 schools that existed in the Kalinin Region before the war and most of which were wrecked by the Germans, 1,126 had been rebuilt by the 25th October, 1943. By April 1944 in Rostov Region 2,430 schools had been restored out of the pre-war number of 2,609. In the 36 districts of Smolensk Region that had been liberated by August 1943, 980 elementary schools, 253 seven-year and 39 ten-year secondary schools have been reopened. By the beginning of the 1943-44 school year the R.S.F.S.R. alone had reconstructed and opened 23,895 schools for 2,800,000 children and by the beginning of 1944 the school buildings that had been rebuilt numbered 15,285 which together with those that survived made 24,000 schools; the 1944 budget allotted 1,000 million rubles for the further restoration of the schools.

By the beginning of 1944 a network of kindergartens had been opened in the liberated regions before the war the kindergartens of these regions catered for 66,000 children whereas they now cater for 70,000. In addition to this, in pursuance of the above-mentioned "instructions" 101 children's homes with accommodation for 13,100 children have been opened in the liberated regions for orphans and for the children of soldiers and partisans. The 1944 budget provides for an increase of these children's homes to provide accommodation for 48,000, kindergartens for 100,000 and nurseries for 41,000 children.

The restoration of the children's institutions in the Ukraine and Belorussia is developing on similar lines. By the 1st January, 1944, in the liberated regions of the Ukraine 10,612 schools had been reopened. In 1944, the schools of 8 regions of the eastern part of the Ukraine will be attended by 1,800,000 children and the kindergartens will accommodate 57,000 children. In the liberated regions of Belorussia 600 schools have already been rebuilt and by the end of 1944 a further 630 will be opened.

The colleges and research institutes which in pre-war days were splendidly equipped are much more difficult to restore. The elementary and secondary schools required tremendous quantities of text-books and other materials—for example, 2,530,000 text-books, about 7,000,000 exercise books and over 3,000,000 pencils have been sent to liberated Ukraine—but how much more difficult and how long a task is it to carry out even preliminary work on the restoration of research institutions, libraries, etc. ?

One would be very naive to believe that the Soviet Union could today, while the war is still in progress, organise, say the production of precision apparatus and laboratory equipment in quantities sufficient to satisfy the needs of the research institutions and colleges, or that at the present moment the necessary text-books can be published or republished in quantities sufficient to make up even to some extent the tremendous loss that the fascist barbarians inflicted on our libraries. Such ideas are of course utopian even for the near future.

Naturally the enemy will have to replace a lot when he has been defeated, 'Germany will pay for her crimes with her libraries and laboratories, the Germans will be obliged to return the property they have stolen. Life, however, cannot await that time, the colleges and libraries must begin work immediately. The only way left was to redistribute the books and scientific equipment available in the country, a way well-known to the Russian people, that of brotherly help, town helping town and region helping region. On the 23rd August, 1942, for example, the State Medical Institute in Stalingrad was set on fire by German bombs and the valuable laboratory apparatus and the X-ray and anatomoical museum were destroyed. On the 1st October, 1943, 8 months after the Germans had been defeated at Stalingrad, the Institute was able to reopen its doors.



The necessary apparatus had come from medical institutes in the towns of Ivanovo, Irkutsk, Molotov; over 20,000 books were donated from the libraries of 13 medical institutes and from the central library in Moscow. A special state "book fund" containing 4,500,000 books has been set up in the R.S.F.S.R. for the purpose of building up libraries; by the beginning of 1944 this fund had sent 1,650,000 books to the liberated regions.

Thanks to measures such as this the colleges, research institutions and libraries are coming back to life quite quickly. Forty-eight colleges and about 100 technical institutes had begun work in liberated Ukraine by 1st January, 1944; in Rostov Region 521 village reading rooms out of 597 had begun working. This does not mean that all these cultural institutions have all the equipment that is considered necessary when judged by pre-war standards. They will require help for a long time to come in order to recover from the losses caused by the Germans and to return to normal life.

As an example of the restoration of one of the larger cultural institutions of the country I will cite the Kirov Opera House in Leningrad. It was badly damaged by a German high explosive bomb which fell in the right wing of the building in the autumn of 1941 and damaged the upper and lower circles and the lobbies and smashed the 12-ton iron curtain. In December 1943 the work of restoration began and was finished in time for the opening of the 1944 season. To restore the moulded and sculptured decorations of the theatre about 4,000 items had to be made. An excellent craftsman, Konstantinov, repaired the damaged chandeliers for which he used 22,000 pieces of crystal glass; the furniture for the theatre was copied from the old furniture.

The State educational authorities are faced with the tremendous problem of replacing the huge net-

work of museums that has been destroyed, looted and burned by the occupants. The museums had reached a high level of development during the 25 pre-war years and included many small museums devoted to the study of the history, culture and natural history of the regions in which they are situated; older museums existing before the revolution had new collections added to them by expeditions equipped by state organisations or by local amateurs. Many of the museums still have excellent collections with which to start up again, collectings that were evacuated in good time or were saved by the forethought and heroism of the museum workers who buried their collections or hid them in secret places; other museums perished in their entirety.

Things that have been stolen we shall get back from the enemy and will return them to the museums, that which has been destroyed we shall, to some extent, compensate at the expense of Germany and her confederates in crime, but in the meantime we must rely on what we have in hand. Many of the museums in the interior of the country have quite rich reserve stores of duplicate exhibits which will to some extent replace that which has been lost in the ruined museums. Our scientific bodies, especially those that organise archæological expeditions, are taking into consideration the need to re-equip a number of museums and are working in places that have already been studied in order to obtain material that is of value equal to that which has been lost. All this, however, will not replace everything that has been destroyed; many of the treasures were unique and can now only be shown in the form of copies and models. Nevertheless we may say that our museums are coming to life again.

Those in the towns that were first liberated by the Red Army have already opened their doors to visitors; the Tolstoy Memorial Museum at

Yasnaya Polyana, the Tsiolkovsky Museum at Kaluga, Chekhov's House at Taganrog and the Chaikovsky Museum at Klin, near Moscow, have all been reopened.

Regional Natural History Museums and Art Galleries are also gradually returning to normal. The Kalanin Picture Gallery is open. The Smolensk Museum is organising a big war exhibition in addition to reconstructing its former galleries.

The Kiev museums suffered terrible losses. The Kiev Museum of Folk Art exhibited 58,000 items before the war all depicting various branches of the folk art of the Ukraine. These valuable collections were looted by the Germans and the best exhibits stolen by Erik Koch, Reichskommissar of the Ukraine, and by Rosenberg in person. At the time of writing (summer 1944) the museum is almost ready for reopening. The Kiev Museum of History had over 600,000 exhibits of which only the most valuable could be evacuated; we saved only 10% of this collection. The Germans stole the rest and then blew up the eight buildings which formed the museum. In the summer of 1944 the museum was able to exhibit part of its collection—the Kiev Rus Department, the Department of Ethnography and a number of others. The Government of the Ukraine is paying special attention to the rebuilding of the botanical gardens which form part of the plan for the reconstruction of Kiev. Our scientists had begun the work on laying out the gardens before the war; a picturesque stretch of the Dnieper Bank was allotted for this purpose near the old Vydubitsky Monastery. The Government decided to push the work forward as quickly as possible during 1944. The gardens will serve to increase the number of useful plants grown in the Ukraine and will contain about 3,000 varieties of trees and shrubs that can grow in local climatic conditions.

In conclusion I want to speak about the restoration or preservation of the remains of art and historical treasures that the German invaders ruined—old churches with their priceless mural paintings, Kremlins (Fortresses), palaces, groups of architecturally connected buildings, monasteries etc. We have already spoken about the way the architects approach the problem of ancient building when reconstructing towns; the work of the architect and the artist is of a still more responsible nature when they have to restore the ancient monuments themselves. The difficulties are many, the damage wrought by this war surpasses everything known to history and then the nature of the monuments themselves is so varied that in each case the problem has to be tackled separately. The restoration and preservation of national monuments is the work of the Committee on Architecture set up by the Council of People's Commissars of the U.S.S.R. As this body is ultimately responsible for the reconstruction of the towns and villages the restoration and preservation of monuments forms part of the general programme. The plans for the reconstruction of Kalinin, Smolensk, Istra and other towns, as we have already seen, show the care and attention which the architect bestows on relics of the past. The war has taught us a severe lesson and brought changes in the line of thought which, enraptured with everything new, often sacrificed the old unnecessarily and replaced it with new and not always good productions.

Nobody expected to see old buildings in their present state, nobody would have believed that they could have been so ruthlessly damaged or left as heaps of ruins; therefore the number of artists and other restoration workers available was far from sufficient. The country did not train large number of specialists in such work, there never before having been any need for them. Our young architects are

busy at this work and we are training a number of special restoration workers as quickly as we can.

In addition to the Government measures adopted to train workers the initiative of the local authorities also plays a great part. In the autumn of 1943 when Leningrad was still within range of the enemy guns a school of "Art-Architecture" was established to train workers in relief carving in marble and wood, plaster moulding, interior decorating and similar arts required for the work of restoration. The students did practical work by copying fragments of the fine palaces of Pavlovsk and Tsarskoe Selo (now Detskoye Selo), learning from the great artists of the past and reconstructing in every detail the valuable fragments of 18th century buildings. The teachers were astounded at the rapidity with which the youngsters learned to do their work. "They learn in a few months what it would take an adult years to master," they say. In the summer of 1944 the pupils of this school took part in restoring the ceiling of the Kirov Opera House which had been damaged by German gunfire.

These preparations enable us to begin work right now on the restoration of some monuments. Academician Shchusev, who is famous for his drawings of a restoration of the 12th century Church of St. Basil at Ovruch made on the basis of archæological excavations, has drawn up plans for the restoration of the Cathedral of the New Jerusalem Monastery, the first victim of German vandalism and one that has suffered very badly. In Leningrad there is scarcely a building of any importance that did not suffer from German gunfire. Work has begun on the restoration of the Admiralty building, the Winter and Taurus Palaces and the building of the Hermitage Museum.

The Ukrainian Government has allotted a million rubles for work on the buildings which surround the

Cathedral of St. Sophia in Kiev and which suffered at the hands of the invaders; the Ukrainian branch of the Academy of Architecture has entrusted the direction of the work to Professor V. I. Zabolotny, a Stalin Prize Winner, and Professor P.F. Pleshin. The Cathedral itself and such 17th and 18th buildings as the Bell-Tower, the Gate Chapel, the Metropolitan's House and the wall around the group will be tackled first.

The city of Novgorod the Great, the Museum City of Russia, contained more historical monuments than any of our other cities. The state of the city when liberated caused alarm amongst all art lovers: over 70 monuments were badly damaged or completely ruined by the invaders. Historical buildings which stood in the Vicinity of the Red Army lines and which were not used for military purposes by the Red Army were almost completely levelled with the ground by German artillery fire; the ruins of the churches of Nereditsa, Volotov and Kovalev are samples of the Germans' work. The monuments that were within the German defences such as the Cathedral of St. George, the Yuriev Monastery, the Church of the Transfiguration of the Saviour with its frescoes by the great master Feofan Grek, the Church of the Nativity and others were not damaged by Soviet gunfire although they were used by the Germans as gun and machine-gun emplacements to rain death down upon the troops of the Red Army.

The restoration and preservation of the monumental buildings of Novgorod began on 10th May, 1944. The town Soviet which met on 6th June, 1944, dealt in detail with the many problems that arise in this work.

Before the war Novgorod was a district centre of Leningrad Region,\* its political and administrative

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\*Novgorod has since been made the capital of Novgorod Region and separated administratively from Leningrad (trans.)

importance had grown and came into contradiction with the museum character of the city. The restoration, therefore, must not only preserve all the historical monuments in the city but must rebuild it with a view to its further development. Many sections of Novgorod were completely destroyed only the foundations of old and new buildings remaining. It offers the planning architects a very alluring possibility of planning a new city in the old style, with radial streets running from the Kremlin in the centre, and at the same time to leave the ancient churches in advantageous positions instead of their being hidden by new buildings as they were before the war.

The restoration of Novgorod is in the hands of Academician Shchusev who knows and loves old Russian architecture. His plan provides for the reconstruction of the city according to the old system of town planning—with modern improvements, of course—the widened central artery being the street which runs from the Kremlin across the Volkhov Bridge to the old trading section of the city; the main motor highway will by-pass the city on the Leningrad arterial highway; the banks of the River Volkhov will be built up and faced. The spaces around the finest historical monuments will be laid out as gardens so that a view of the buildings can be obtained. Some groups of historical monuments will become state reservations; these latter include the territory of the Kremlin and the territory of the Yaroslav Palace on the opposite side of the river.

The architecture of the almost completely destroyed city offers greater problems. Architects quite right by rejecting the Philistine 'Shop-keeper' type of architecture in favour of the style known as "Provincial Empire" which was more characteristic of the old town. Architects are also toying with the idea of completely restoring the old

monuments—that is, use their stones and bricks to build up full scale “models” of the original buildings exactly as we knew them before the war.

Art historians, archæologists and historians have raised their voices against this interpretation of the task of restoring Novgorod; they are of the opinion that the city would be so full of “Counterfeits” that the genuine monuments to the past would be lost amongst them. They recommend the architects to preserve the most valuable of the old buildings and to avoid the danger of using pseudo-historical styles in their new buildings. There are also objections to the erection of buildings in the classical style which are quite in place in Leningrad or Kalinin; as they are by no means characteristic of Novgorod. Scholars are of the opinion that in rebuilding the old museum-city of Russian National Culture the architect's main task is to provide unpretentious buildings which will not clash with the spirit of the city. Art historians and archæologists protest against the restoration of buildings that have been completely destroyed and want to see the ruins preserved as ruins; they should be kept under cover, housed in glass, for example, all records of the buildings should be carefully preserved and local museums to exhibit surviving fragments of mural painting, decoration etc., should be organised. Scholars point out the advisability of planning the new city of Novgorod so that the historical monuments will have favourable positions enabling them to be viewed from a distance or at close quarters. Scholars also want to see the sites that offer the greatest interest to archæologists left free of buildings for their post-war work.

Such discussions as these concerning the restoration of old Russian cities of the type of Novgorod will lead to that solution of the problem that is the most rational, as each of the opinions is an expression



of love for the monuments to Russia's past and a desire to heal as quickly as possible those wounds that the Germans barbarians have inflicted on these monuments.

We have made a very careful study of the experience of the British and French restoration workers and have found very many valuable solutions to problems and also recipes which we are using.

## CONCLUSION

In concluding this little booklet I should like to warn the reader of one circumstance which is beyond the author's control. By the time the booklet appears much that I have written will be "Out of Date." A book on this subject can never be quite up to date for everyday brings to light new facts which bear evidence of the ever-growing enthusiasm of the builders, of new communities that have been rebuilt, of new plans for the restoration of cities and of corrections and improvements made in already existing plans. Only a newspaper or the constantly growing diary of the scholar who is collecting material for the History of the Epoch of the Great Patriotic War and the Period of Reconstruction which is to follow can hope to keep pace with the work. This "defect" in the booklet is the best proof of what I have tried to show—the tempestuous rate at which the liberated regions are being restored to normal, a fact that is due to the tremendous creative energy of the people multiplied by the organizational strength of the Soviet State which incorporates representatives of the sciences and the arts into the army of builders.

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